THE LONG TERM FINANCIAL SUSTAINABILITY OF THE HIGH VALUE GAME BREEDING SECTOR IN SOUTH AFRICA

JACOBUS STEFANUS STRAUSS

A field study submitted to the UFS Business School in the
Faculty of Economic and Management Sciences
in partial fulfilment of the requirements for the degree of
Master of Business Administration
at the University of the Free State
Bloemfontein

SUPERVISOR: PROF B.J. WILLEMSE

November 2015

Declaration

By submitting this research report I, Jacobus Strauss, declare that the entirety of the work contained herein, is my own original work, that I am the owner of the copyright thereof (unless explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

J.S. Strauss **15 September 2015**

Acknowledgements

First and foremost, this study would not have been possible without my Creator.

I would like to thank the following people who made this research study possible:

Prof B.J. Willemse (study leader) for his valuable knowledge, assistance and confidence in me.

Helgard and Sune Beukes from Somerby Safaris for their help to collect date from international hunters.

Lastly, I would like to thank my lovely wife Liza Strauss for her love, support and unending patience.

Abstract

The purpose of this research study was to determine whether the high value game breeding industry is financially sustainable, if the industry will continue to expand and can the industry generate long term competitive financial returns for an investor.

The study made use of both quantitative and qualitative research methods. Data was collected from international hunters, hunting outfitters and high value game breeders through questionnaires and interviews. Wildlife auction results was retrieved from Vleissentraal Bosveld and international hunting statistics compiled by the Department of Environmental Affairs concluded the data collection. The data collected was used to construct a cash flow model for five different price movement scenario for an investment into Buffalo, Sable, Golden Wildebeest and Black Impala through an investment company.

The results show that an investment into the high value game breeding sector can deliver long term competitive financial returns. And that the sustainability of the high value game breeding sector will be reliant on the support and success of the international or trophy hunting industry in South Africa.

TABLE OF CONTENTS

List of tables

List of figures

List of acronyms and abbreviations

CIC	International Council for Game and Wildlife Conservation
GDP	Gross domestic product
IRR	Internal rate of return
NPV	Net present value
PHASA	Professional hunting association of South Africa
SCI	Safari Club International
VAT	Value-added tax
WRSA	Wildlife ranching South Africa
CIS	Collective investment scheme
CGT	Capital gains tax

CHAPTER 1
INTRODUCTION AND PROBLEM STATEMENT

1.1. INTRODUCTION

The proposed research aims to determine whether the high-value game breeding sector within the wildlife ranching industry could continue to expand and provide a reasonable return on investment. Over the last decade, the growth in the sector has been phenomenal, setting new record prices for individually sold species annually.

1.2. BACKGROUND

The game ranching industry in South Africa dates back to the 1960's, when only three private game ranches were in existence where the ownership of the land and game was vested in the hands of the farmer (Dry, 2014). Evidence of live animal auctions in South Africa can be dated back as far as 1874, more than a 140 years ago (Bothma, 2014). Domestic stock and crop farms were converted to private game ranches and today 16.8 percent of agricultural land is made up out of private game ranches, compared to the 6.1 percent of agricultural land in state protected areas. The newly established game ranches had to be stocked with game, which led to a steady increase in the number of live animal sales. Initially game ranches were stocked with animals from state protected areas and naturally converted to form the private game ranching industry. From 1991, the turnover and number of game animals sold, increased rapidly to 1997, with predominantly plains game that was reintroduced to new private game ranches. By 1998, game ranches had started to introduce rare game species, which included white and black rhino, buffalo, roan and sable antelope. The introduction of rare game to the wildlife industry brought about new financial growth. This continued to 2004, where after intensive breeding and stud or trophy breeding started (Bothma, 2014).

The game ranching industry in South Africa has grown significantly over the last decade, setting new record prices for individually sold species annually. The turnover of live animal sales on Vleissentraal's auctions alone, grew from R72 million in 2004 to over R864 million in 2012 (Groenewald & York, 2013). In 2013, the turnover of live animal sales on auction surpassed the R1 billion mark (Bezuidenhout, 2014). This equates to a 30 percent year-on-year growth in turnover for the ten years ending 2013. Private sales made up out of direct farmer-to-farmer sales, as well as sales through wildlife agents are estimated to be double

that of live auction sales (Bothma, 2014). Thus, including private sales, the total turnover of live animal sales for 2013, was close to R3 billion.

Game is classified in two broad categories, namely rare species, which include white rhino, Livingstone eland, buffalo, roan, sable, black impala and golden wildebeest; and plains game, which includes the more common species (Groenewald & York, 2013). Over the last couple of years, more colour variants have joined the classification of rare game, including blue wildebeest, impala, blesbuck, oryx and springbuck colour variants, as well as plains game with exceptional horns, classified as trophy animals. The high value game sector can be divided into the following sub-sectors a) rare game, b) colour variations of plains game species, and c) game with exceptional trophy measurements.

The economic sustainability of high value game species, has been a well-debated topic in wildlife and hunting communities for the last couple of years. Chris Niehaus argues the selective breeding of colour variants does not satisfy a specific need for it to be sustainable over the long term and that there is not and will not be a demand from the local hunting community for these animals (Niehaus, 2014). The majority of trophy hunters are from overseas and in most cases members of the International Council for Game and Wildlife Conservation (CIC), Safari Club International (SCI) or Rowland Ward; they would look to register their trophies with one of these institutions. However, these institutions do not classify colour variants as a different species for the record books (Niehaus, 2014). To conclude, Niehaus argues that there are no end users for colour variants and that the demand for these animals is from speculative purchasers who are lured into buying these animals for the promise of extraordinary financial returns and that this is consistent with the economic bubble view of runaway game prices (Niehaus, 2014).

In response to the question from wildlife ranching sceptics regarding when this bubble will burst, Barry Groenewald and Richard York from Golden Breeders argue that the bubble will never burst, but that the market will fluctuate and prices will go up and down. The driver behind the market is South Africans' passion for farming and the great outdoors (Groenewald & York, 2013).

Dr Flippie Cloete (2014) argues that the wildlife industry has two types of investors – those who are driven through short-term financial returns, and those who have a longer term view with a balance in expectations of short-term financial returns and long term sustainability of

the industry. The latter group considers both the status of the industry and the end user when they evaluate their investment choices (Cloete, 2014).

Investment opportunities in selective or rare game breeding, range from structured wildlife breeding investment companies, to land owners not involved in the wildlife industry, inviting investors to participate in the high value game industry, where the landowner provides the land and is responsible for managing the project, and the investor provides the capital to purchase the game. The high possible returns and returns achieved of between 30 percent and 60 percent per annum for the past decade, make the industry attractive for investors. Typical investment models available from Gamevest, range from a 27 percent internal rate of return (IRR), to 51 percent IRR (Gamevest, 2014).

1.3. RESEARCH PURPOSE

1.3.1. Problem statement

The lucrative industry already supported by business tycoons Johan Rupert and Cyril Ramaphosa, has caught the attention of private investors wanting to participate in the growing wildlife industry and share in the high returns. The barriers to entry in the wildlife ranching industry are high, due to the high cost of game, land and infrastructure requirements. This has led to the establishment of wildlife investment companies through which investors can invest in the lucrative industry, without owning land or having any operational involvement, making it possible for almost anyone with capital to invest in the high value game industry. The question remains whether long term investment into the high value game industry is a viable investment decision. This research will try to answer this question, as more and more new investors continue to invest and subsequently drive prices higher.

1.3.2. Research objective

The research objectives of the study are set out below.

1.3.3. Primary research objectives

The primary objective of this study, is to determine whether the high value game sector in South Africa is financially sustainable. Will the industry continue to expand and deliver a reasonable return on investment?

1.3.4. Secondary research objectives

The secondary objectives of the study, are to determine the long term demand for high value game.

- Demand for high value game from the trophy hunting industry.
- Demand for high value game from the high value game breeding sector.

1.3.5. Research aim

The research aim of the study, is to evaluate the investment criteria of an investment into the high value game breeding sector. The study should supply the potential investor with sufficient information and evidence to make an informed investment decision.

1.4. RESEARCH METHODS

The use of multiple methodologies is supported by several researchers, to get a more dependable and deeper perspective on the topic (Boudreau, Geven & Straub, 2001). For this study, both quantitative and qualitative research methods were used, namely the mixed method. The mixed method provides a better understanding of the research problem and is used when one type of research, qualitative or quantitative, is not enough to address the research problem, or answer the research questions. Quantitative and qualitative strands were implemented concurrently and during the same phase of the research process, the methods were equally prioritised, and the strands were kept independent during analysis. The results were then mixed during the overall interpretation. The convergent parallel research design method, is the most recognised approach to mixing methods (Creswell & Plano Clark, 2011).

Descriptive and interpretive approaches were followed in the qualitative research and were applied to determine the views of purposefully selected industry experts within the trophy-hunting and high-value game breeding sectors. Qualitative research today is a diverse set, encompassing an array of approaches. By common definition, all these methods rely on linguistic, rather than numerical data (Elliott & Timulak, 2005). Qualitative research is described as a post-positivistic approach, which seeks to understand cases in context of specific settings (Niemann, Niemann, Brazzel, Van Staden, Heyns & De Wet, 2000). Data was collected through semi-structured and telephonic interviews with open questions. The purpose of the interviews, was to understand the experience of the participants, get their in depth views on the sustainability of the high-value game breeding sector and the demand

for high value game in the trophy hunting sector. Five professional hunting outfitters and six high value game breeders, ranging from medium- to large, were selected for interviews, due to time constraints of this study.

Quantitative research is a positivistic approach, to emphasise the measurement and analyse the causal relationship between variables (Golafshani, 2003). It is described by Hara as an endless search for facts (Hara, 1995). It was relevant to this research study, because a set of findings was presented in numerical format, and questionnaires required a choice between fixed answers. Industry statistical data was collected from the Professional Hunting Association of South Africa (PHASA, 2014), to determine the size and growth rate of the trophy hunting industry in South Africa, as well as the number of different species hunted. Questionnaires were distributed to a database of overseas trophy hunters via email, through professional hunting outfitters willing to participate and ask their clients to complete the questionnaire. The target was to collect at least 50 completed questionnaires. In order to validate the findings of quantitative research in the form of questionnaires, the population size should be large enough to be representative of the group they represent. The aim of the questionnaire, was to determine the demand for high value game from trophy hunters and to establish how price sensitive the demand for colour variations of game species is.

The quantitative data was analysed with the use of descriptive statistics that facilitate describing, showing, or summarising the data in a meaningful way that allows simple interpretation (AERD Statistics, 2015).

Qualititive research requires flexibility during the analysis phase; however, in spite of the flexibility, qualitative research often employs a general strategy that provides the backbone of the analysis (Elliott & Timulak, 2005). In grounded theory, this strategy is referred to as axial coding and, in consensual qualitative research, it takes the form of a set of general domains that are used to organise the data (Elliott & Timulak, 2005). Elliotte and Timulak provide a general framework for descriptive/interpretive qualitative research, that was used in this study to analyse the qualitative data.

The first step was data preparation. In this study the data collected through interviews was recorded on notes during the interview. During this stage of the analysis, the data was written down as memos and initial insights and understandings started to emerge. The second step was delineating and processing meaning units, dividing the data into distinctive meaning sets. The next step was finding an overall organising structure for the data, where destinctive

meaning sets were organised into different domains.The fourth step in analysing the data, was to code or categorise the meaning units within each domain. The last step before the data could be interpreted, was to abstract the main findings. The validity of the analysis was assessed throughout the study (Elliott & Timulak, 2005).

After both qualitative and quantitative strands had been analysed, the results were mixed during the overall interpretation by using the convergent parallel research design method.

Market segmentation was first put forward in the middle of the 1950's by Wendell R. Smith, an American professor of marketing. Segmentation is the process of dividing a market into smaller groups of customers, or consumers with the same needs (Goyat, 2011). Four segmentation bases have emerged as the most popular: geographic segmentation, demographic segmentation, psychographic segmentation and behavioural segmentation (Goyat, 2011). The segmentation base chosen to subdivide the market, depends on the type of product, the nature of demand, the method of distribution and the motivation of the buyer (Goyat, 2011). The game ranching industry has been divided into four main market segmentations: high value game breeding, hunting, ecotourism and the game product sector.

For an investment to be viable over the long term, the investment needs to generate long term competitive financial returns. Financial planning is essential and a planning horizon of between two to five years is considered long term, as the future is inherently unknown (Firer, et al., 2008). Making a capital investment decision requires taking some educated guesses of possible future cash flows. A discounted cash flow model was used to evaluate the capital investment decision, as by Firer, Ross, Westerfield and Jordan (2008).

The degree of forecasting risk in cash flow and net present value (NPV) models, should be managed in an organised way. Firer *et al*. (2008) suggest identifying the critical components to success or failure of the investment and to place an upper- and lower limit on these components and then investigate the impact of the different assumptions about the future on the estimates (Firer, et al., 2008).

1.5. CONCLUSION INCLUDING AN OUTLINE OF THE STUDY

Growth in the wildlife industry over the last decade has attracted the attention of various investors, both locally and internationally. Industry experts argue that the rare game industry is a unique and sustainable asset class that would react to market conditions with price fluctuations like any other industry. The much debated high value game industry, is labelled by sceptics as unsustainable and driven by greed and short-term profits. Sceptics have also raised biodiversity issues and argue that select breeding is genetic manipulation and unethical. This study aims to give answers on the economical sustainability of the high value game breeding industry and not the biodiversity, or land ownership issues that would be pointed out as risks or recommendations for further research studies.

CHAPTER 2
LITERATURE REVIEW

2.1. INTRODUCTION

The game ranching industry in South Africa can be dated back to the 1960's, when the value of game was predominantly determined by the value of the meat. The number of game ranches increased as farmers converted traditional livestock farms to game farms, after the introduction of the game theft act no 105 of 1991, that allowed the ownership of game to vest in the hand of the private landowner. Game ownership was previously vested in the hands of the state. The sale and transport of wild animals to the new game farms, started to develop and transformed the industry to what it is today.

The game ranching industry is divided into four main market segmentations, namely the high value game breeding sector, hunting sector, ecotourism sector and the game product sector. The high value game breeding sector has grown tremendously over the last decade and investors have been handsomely rewarded. The high returns have caught the attention of the market, which has led to a consistent inflow of capital into the market. Consequently, prices of game have been driven upwards. Investors are constantly seeking for new investment opportunities and alternative asset classes to invest in and to diversify their investment portfolios. This has brought about the formation of game investment companies that have made the lucrative industry, with high barriers to entry, easily accessible for the general investor.

For an investment to be viable over the long term, the investment needs to generate long term competitive financial returns. Financial planning is essential and making a capital investment decision requires taking some educated guesses in terms of possible future cash flows. A commonly used method to calculate investment returns in South Africa, is the average accounting return method, where an average accounting profit is divided by the average accounting value (Firer *et al*., 2008). This method is flawed, especially when it comes to a capital investment decision. To evaluate the capital investment decision, a combination of methods such as the discounted cash flow model and payback period should be used, as suggested by Firer *et al*. (2008).

2.2. BACKGROUND OF THE GAME RANCHING INDUSTRY

The game ranching industry in South Africa dates back to the 1960's, when only three private game ranches were in existence and where the ownership of the land and game was vested in the hands of the farmer (Dry, 2014). Evidence of live animal auctions in South Africa can be dated back as far as 1874, more than a 140 years ago (Bothma, 2014). However, it was only after the introduction of the Act on Game Theft of 1991 (Act No 105 of 1991), that the ownership of game was no longer vested in the hands of the state but in the hands of the farmer (Bothma, 2014). This is the differentiator in the wildlife culture of South Africa that is based on sustained economic utilisation compared to the American culture, which is based on the belief that making money out of wildlife is immoral, according to Ron Thomson when he addressed the delegates of the first annual congress of the Wildlife Ranchers of South Africa (WRSA) at Castle de Wildt in Modimolle on 11 April 2013 (Dugmore, 2013).

Domestic stock and crop farms were converted to private game ranches and by the year 2000 it was estimated that there were 7 000 private game ranches that constituted 13.3 percent of agricultural land, or 16 million hectares of land in South Africa (Van der Merwe & Saayman, 2003). By 2013 this number had increased to 10 000 registered private game ranches and constituted 16.8 percent of agricultural land in South Africa, generating 100 000 permanent jobs and contributing an annual R9 billion to South Africa's Gross domestic product (GDP) (Dugmore, 2013). According to the Barclays Africa Group, the game ranching industry in South Africa is worth R12 billion a year and growing by 10 percent annually (Fin24, 2015). Apart from the private game ranches, an additional 6.1 percent of agricultural land is in state protected areas. The game numbers in South Africa have also benefited from the growth in game ranches; the number of game increased from 575 000 in 1960, to almost 19 million in 2007 (Brink, Cameron, Coetzee, Curry, Fabricius *et al*., 2011).

The newly established game ranches' need to be stocked with game, has led to a steady increase in the number of live animal sales. Game ranches were initially stocked with animals from state protected areas and naturally converted to form the private game ranching industry. The turnover and number of game animals sold, increased rapidly from 1991 to 1997, with predominantly plains game that was reintroduced to new private game ranches. Many of these game ranches, especially the smaller ones, were subsidised by their part-time owners or made marginal profits, while even the larger game ranches battled to earn an equivalent of the risk free rate, due to the high cost of land and infrastructure (Wildlife campus, 2013). By 1998, game ranches had started to introduce rare game species,

including white- and black rhino, buffalo, roan and sable antelope. The introduction of rare game to the wildlife industry brought about new financial growth, which continued to 2004, when intensive breeding and stud or trophy breeding started (Bothma, 2014).

Market segmentation of the wildlife ranching industry

Market segmentation was first put forward in the middle of the 1950's by Wendell R. Smith, an American professor of marketing. Segmentation is the process of dividing a market into smaller groups of customers or consumers with the same needs (Goyat, 2011). Four segmentation bases have emerged as the most popular: Geographic segmentation, demographic segmentation, psychographic segmentation and behavioural segmentation (Goyat, 2011). The segmentation base chosen to subdivide the market, depends on the type of product, the nature of demand, the method of distribution and the motivation of the buyer (Goyat, 2011). The wildlife ranching industry has been divided into three main market segmentations, namely the hospitality- and ecotourism sector, the game meat sector and the game ranching sector *(*Dry, 2014*)*. However, these sectors overlap and complement each other, and hence the game ranching industry or sector can further be divided into the four contributing pillars or sub-sectors, as discussed in the paragraphs below.

2.2.1. Game breeding and trade

The game breeding industry in South Africa has grown significantly over the last decade, setting new record prices for individually sold species annually. The turnover of live animal sales on Vleissentraal's auctions alone, grew from R72 million in 2004 to over R864 million in 2012 (Groenewald & York, 2013). In 2013, the turnover of live animal sales on auction surpassed the R1 billion mark (Bezuidenhout, 2014). Mystery, a buffalo bull with an exceptional horn span of 53 inches, was bought by billionaire Johann Rupert for a staggering R40 million in 2013, while Deputy President Cyril Ramaphosa sold three white-flanked impalas for R27.3 million in 2014 (Fin24, 2015). The turnover in wildlife auctions grew 30 percent year-on-year over the last ten years ending 2013, causing more farmers to switch from cattle to breeding wildlife, and pushing up the prices even further (Fin24, 2015). Private sales made up out of direct farmer-to-farmer sales, as well as sales through wildlife agents are estimated to be double that of live auction sales (Bothma, 2014). Thus, including private sales, the total turnover of live animal sales for 2013, was close to R3 billion.

Game is classified under two broad categories, namely rare species, which includes white rhino, Livingstone eland, buffalo, roan, sable, black impala and golden wildebeest; and plains game, which includes the more common species (Groenewald & York, 2013). Over the last couple of years, more colour variants have joined the classification of rare game, including blue wildebeest, impala, blesbuck, oryx and springbuck colour variants, as well as game with exceptional horns, classified as trophy animals.

The game breeding sector can be subdivided as follows:

- Plains game

  Plains game includes all common species of game indigenous to South Africa.

- High value game

  High value game includes rare game, colour variations of game species and trophy animals.

  - Rare game

    Rare game includes game species that are indigenous to South Africa and are classified as rare because of their low numbers. Rare game includes, but is not limited to the game listed in Table 2.1.

Table 2.1: Rare game

White Rhino	Sable	Buffalo (disease free)
Black Rhino	Roan	Bontebok

  - Colour variations of game species

    Colour variations of game species simply denote plains game with different coat colour variations. Evidence of colour variations in game can be traced back to 1906, in an article published in Fores's Sporting Notes & Sketches in 1906, written by 'Nkois Ikona. The article is about a hunting expedition in the Kalahari region of South Africa searching for the illusive Golden Gemsbok (Ikona, 1906). Colour variations of game species include, but are not limited to the game listed in Table 2.2.

Table 2.2: Colour variations of game species

Golden Wildebeest	Saddleback Blesbuck	Coffee Springbuck
King Wildebeest	White Blesbuck	Cream Springbuck
Ghost Wildebeest	Yellow Blesbuck	Copper Springbuck
Black Impala	Copper Blesbuck	Black Springbuck
Saddleback Impala	Red Oryx	White Springbuck
White-flanked Impala	Golden Oryx	

- Trophy animals

  Trophy animals are classified as any indigenous game species with exceptional horn length, and include both plains game and high value game (rare game and colour variations of game species). Institutions such as Rowland Ward and SCI, keep record of animals hunted and registered by their members. They have different methods of measuring the trophy animals, but both have minimum requirements for an animal to qualify as a trophy. Currently Rowland Ward does not have different measurements for colour variations and SCI only has a small number of colour variations listed with different measurements like the white, black and copper springbuck.

2.2.2. Hunting

Hunting is the biggest income generator for game ranches and can be divided into two sub-sectors, namely trophy hunting and biltong hunting (Van der Merwe & Saayman, 2003).

- Trophy hunting

Trophy hunting is defined as an activity by which wildlife is hunted primarily for the animals' horns (measured according to Rowland Ward and SCI) and the skin, in order for these to be displayed as trophies (Van der Merwe & Saayman, 2014). In 2012 South Africa had about 9 000 international trophy hunters that each spent R138 241 on average, or a total of R1.24 billion per year (Van der Merwe & Saayman, 2014). Trophy hunters predominantly consist of international hunters visiting South Africa.

- Biltong hunting

Biltong hunting can be defined as an activity where wildlife is hunted by means of a rifle, bow or similar weapon, mainly for the use of the game meat (venison) (Van der Merwe, 2014a). Biltong hunters are predominantly South African citizens. Biltong hunters' general spending, which includes travel, accommodation, hunting gear and food, but excludes spending on game, is on average R16 565 per hunting season. Spending on game is a further R14 906 per season. Added together, the total spend per biltong hunter is R31 471 per year. Multiply this by the number of biltong hunters estimated at 200 000. Biltong hunting thus contributed roughly R6.3 billion in 2013 (Van der Merwe, 2014a).

2.2.3. Game product sector

The game product sector mainly consists of game meat or venison. There are a few other by-products such as game leather products or tanned game skins, but game products jointly is the smallest contributor in the game ranching sector (Van der Merwe & Saayman, 2003). This may not always be the case, as venison has a very low fat percentage and there is a global movement among humans to live healthier. South Africa currently exports 2 000 tons of game meat or venison to the European Union, but the demand is estimated to be a hundred times more at 200 000 tons of game meat per year (Van der Merwe, 2014b).

2.2.4. Ecotourism

South Africa has a unique tourist attraction in the abundant wildlife, game reserves and game ranches that can only be accessed and experienced on the beautiful continent of Africa. Ecotourism can be classified as non-consumptive, viewing and photographing of the wild animals. Little research has been done on ecotourism in relation to game ranches in South Africa. In 2003, Van der Merwe and Saayman (2003) investigated the average amount spent and length of stay per tourist on a game ranch in South Africa. The average tourist spends R354.73 per day and stays for three days. If 100 000 tourists visit game ranches in a year, the total spend would be R106 million. Add inflation to this amount and it is a clear indication of the value that ecotourism can have for game ranches (Van der Merwe & Saayman, 2003).

2.3. INVESTMENT OPPORTUNITIES IN THE HIGH VALUE GAME BREEDING INDUSTRY

Investment opportunities in the high value game breeding sector, range from structured wildlife breeding investment companies, to land owners not currently involved in the high value game breeding sector. In the latter instance, the landowners invite the investors to participate in the high value game breeding sector, where the landowner provides the land and infrastructure and is responsible for managing the project, whereas the investor provides the capital to purchase the game. The high possible returns and returns achieved of between 30 percent and 60 percent per annum for the past decade, make the industry attractive for investors. Typical investment models available from Gamevest, range from a 27 percent IRR, to 51 percent IRR (Gamevest, 2014).

Due to the high cost of land and infrastructure, as well as the operating costs (labour, feed and utilities) required to participate in the high value game breeding industry, the financial barrier to entry is high. Another hurdle for the investor to overcome, is the general management and lack of experience in game breeding. After the initial land and infrastructure cost, there is still the cost of the game itself to consider. Even for the landowner the cost of investing in the high value game breeding industry is high, as illustrated in the tables below, which indicate buffalo, sable, black impala and golden wildebeest average prices in Vleissentraal's auctions of 2013.

Table 2.3: Buffalo auction prices 2013

	Average Price	Number sold	Turnover
Bull	R1 876 836	58	R108 856 500
Young bull	R219 772	68	R14 944 500
Heifer	R501 987	78	R39 155 00
Heifer pregnant	R1 060 833	24	R25 460 000
Cow pregnant	R945 196	51	R48 205 000

Source: (Vleissentraal, 2013)

Table 2.4: Sable auction prices 2013

	Average Price	Number sold	Turnover
Bull	R327 497	191	R62 552 000
Young bull	R129 338	219	R28 325 000
Heifer	R411 875	248	R102 145 000
Heifer pregnant	R605 595	42	R25 435 000
Cow pregnant	R635 109	92	R58 430 000

Source: (Vleissentraal, 2013)

Table 2.5: Black impala auction prices 2013

	Average Price	Number sold	Turnover
Ram	R244 333	30	R7 330 000
Young ram	R181 750	8	R1454 000
Ewe	R251 806	72	R18 130 000
Ewe pregnant	R310 000	2	R620 000

Source: (Vleissentraal, 2013)

Table 2.6: Golden wildebeest auction prices 2013

	Average Price	Number sold	Turnover
Bull	R571 333	15	R8 570 000
Young bull	R455 833	12	R5 470 000
Heifer	R300 681	22	R6 615 000
Heifer pregnant	R423 000	20	R8 460 000
Cow pregnant	R395 000	4	R1 580 000

Source: (Vleissentraal, 2013)

Landowners and investors have formed partnerships to overcome the high cost of entering the high value game breeding industry. These partnerships are generally formed between landowners and investors who are well acquainted with one another. These partnerships give individual investors and landowners the opportunity to enter the high value game breeding industry and have laid the foundation for the high value game breeding investment

companies. Game breeders and landowners realised there was an opportunity to raise capital from investors to expand their breeding projects.

There are different models or agreements between investors and game breeding investment companies, but these models or agreements generally follow two schools of thought:

Model 1

The investor needs to purchase a breeding herd, generally consisting of one breeding bull and between ten and twenty female animals. Either the investor or the investment company, depending on the agreement, sources the animals. The initially purchased animals will remain the property of the investor throughout the investment term and the only additional costs carried by the investor, apart from the initial purchase and relocating cost, is unforeseen veterinary costs associated with animals purchased for the initial breeding herd. The investment company supplies the land and infrastructure, as well as the day-to-day operations and management of the animals and all the costs associated with the wellbeing of the animals. In return, the investment company is generally entitled to a percentage of the progeny proceeds of the herd of about 50 percent (Gamevest, 2014).

Model 2

As with model one, the investor is responsible for the costs associated with the purchasing and relocation of the animals. The investment company generally sources the animals on behalf of the investor. The investor carries all the costs to purchase and relocate the animals, which includes, but is not limited to value added tax (VAT), insurance and transportation of the animals. Apart from the initial cost, the investor must pay a management fee per animal per year, depending on the species. For sable, this amount is approximately R2 500-00+vat per animal per year (Merar, 2013). And lastly, the investor must pay a percentage on turnover of breeding gains, or animals sold. This percentage is stipulated in the agreement and is in the vicinity of 10 percent. In this scenario, the initially bought animals as well as the progeny, are the property of the investor and the investor carry the risk of any deaths.

The investment company in return supplies the land and infrastructure and is responsible for the day-to-day operations and management of the breeding herd and all additional costs of managing the herd that include but are not limited to veterinary costs, feed, staff, maintenance, etc.

In both models, the investment company is responsible for the marketing and sales of the animals and the investor and investment company will enter into a renewable fixed term agreement that could range from five to ten years. The above two models only form the principal of the agreements or investment opportunities available. In practice, there is a number of different models based on the same two principles available. Projected returns for investors vary for the different species and are based on historical performance. For a seven year investment of R15.4 million excluding VAT in Sable, an IRR of 27 percent per annum can be achieved, based on a typical investment model, to an IRR as high as 51 percent per annum for a R1.05 million excluding VAT investment in nyala (Gamevest, 2014). Alternatively, based on conservative performance numbers, an expected return of 450 percent over a ten year period is predicted for a sable investment in the Western Cape (Merar, 2013). The investor will typically only receive his first cash payment out of the investment after three years and periodically thereafter, untill the end of the investment term.

2.4. INVESTMENT DECISION MAKING

The main factor that contributes towards the long term success of an investment portfolio, is a well-researched topic, both in South Africa and abroad. Investment decisions always include a risk return trade-off and aim to maximise the risk-adjusted return of an investment. Risk that investors need to manage, can be either systematic or unsystematic. Unsystematic risk is company or industry-specific risk and can be managed through diversification of security selection. Systematic risk, also known as market risk, or undiversifiable risk that affects the overall market, is unpredictable and impossible to avoid completely. Systematic risk can be managed through hedging and asset allocation, or diversification of low or uncorrelated asset classes. Investment professionals and investors alike use diversification to manage risk and smooth out investment returns, or to reduce the volatility of returns. Diversification in its purest form, is simply not to put all your eggs in one basket, or to construct an investment portfolio through a combination of low- and uncorrelated asset classes and securities within these asset classes. The investment world is complex, while the asset classes available to individual investors seem to be somewhat limited.

The typical South African investor is generally limited to the following traditional asset classes through collective investment schemes that do not require any operational involvement from the investor:

The asset classes listed below are available in South Africa and offshore

- Cash or cash equivalents (money market instruments)
- Fixed income (Government and corporate bonds)
- Equities (Listed shares and property)

Alternatively, a combination of these asset classes is available through collective investment schemes that are managed by investment professionals and available through asset management companies.

Managing systematic risk through diversification of asset classes is no simple task. With the globalisation of world economies, international markets, especially equity markets, have become increasingly correlated (Buttonwood, 2012). Arora, Jain and Das have concluded in their study “International diversification through emerging market investment”, that the diversification benefits are very limited for a developed market investor to diversify purely by accessing emerging markets (Arora, Jain & Das, 2011).

The design of an investment portfolio that matches the investor profile involves at least four steps (Brinson, Beebower & Hood, 1995):

- Deciding which asset classes to include in an investment portfolio and which asset classes to exclude.
- Deciding on the normal or long term weighting of these asset classes in the portfolio.
- Market timing, strategically altering the weightings towards the asset classes away from the normal or long-term average, in an attempt to capture excess returns.
- Security selection, selecting individual securities within an asset class, in an attempt to outperform the mean return of that asset class.

In a landmark study of pension plans in 1991, Brinson *et al* (1991) came to the conclusion that asset allocation is the primary determinant of volatility in portfolio returns and that the asset allocation decision is far more meaningful to long term success of an investment, than either security selection, or market timing (Brinson *et al*., 1991). They concluded that the long term success of an investment portfolio is primarily determined by asset allocation, not security selection, or market timing and have allocated the following weightings of importance to the different steps in the investment decisions:

- Asset allocation decision 91.5%
- Stock or security selection 4.6%
- Market timing 1.8%
- Other 2%

In order to manage systematic risk, investors use diversification of traditional asset classes and hedging strategies, as well as alternative asset classes.

2.5. ALTERNATIVE ASSETS

Beyond the three traditional asset classes – equities (listed shares and property), fixed-income (bonds) and cash – many other types of investment can be used to diversify investment portfolios (Skidmore, 2010). In general, investments beyond traditional equities, fixed-income and cash are known as alternative asset classes. The term 'alternative assets' is highly flexible and can include a wide range of different possibilities, from specific physical assets such as natural resources or real estate, racehorses, art or classic cars to methods of investing such as hedge funds or private equity.

Characteristics of alternative asset classes (Skidmore, 2010)

- Alternative asset classes generally have low, or no correlation towards traditional asset classes, which are increasingly linked in a global economy. Both institutional and individual investors use alternative asset classes to increase returns and/or manage risk.

- Hedge funds can take advantage of looser regulations, which apply to collective investment schemes, through unique investment strategies, such as selling securities short.

- Alternative assets can also provide pride of ownership, in addition to their investment value, such as art, antiques or gemstones that may simply be a pleasure to own.

- Alternative assets are often less liquid than traditional assets. When the investor is ready to sell, he might not find a willing buyer and hedge funds may require investors to stay invested for a certain period of time.

- Accurately assessing the value of certain alternative assets, can prove to be very challenging and a true value may only be determined when the asset is sold.
- Greater investment freedom for hedge funds and the fact that they are subjected to less regulation, can increase the potential for mismanagement.
- Physical assets such as art, antiques and gemstones are subjected to external risks and may involve special considerations, such as storage and insurance.
- With the unique properties of low correlation with other markets, alternative assets can also carry a high degree of risk.

Alternative asset classes with their unique characteristics, are not appropriate for every investor and investors should first assess their risk tolerance and investment objectives before seeking for alternative investment opportunities.

2.6. FINANCIAL PLANNING

For an investment to be viable over the long term, the investment needs to generate long term competitive financial returns. There are different ways to examine a potential investment in light of its likely effect on the investment portfolio, or as a good standalone investment. Using different valuation methods in conjunction on the same investment, can shed more light on the possible investment outcomes and allow the investor to make a better informed investment decision. Given the risk associated with the investment, the investor must decide what compensation or return s/he requires, to willingly take the associated risk. This is known as the required rate of return. There is always a risk return trade-off: the higher the risk associated with the investment, the greater the possibility of higher returns; alternatively, the lower the risk, the greater the possibility of smaller returns.

Required rate of return

The required rate of return is the minimum annual percentage return an investor is willing to accept before s/he will take on a specific project or investment.

IRR (Internal rate of return)

The IRR is the expected return on a project or investment and is the return used in capital budgeting to measure the profitability of a project or investment. The IRR is equal to the required rate of return if the NPV of an investment equals zero. If the IRR is greater than the required rate of return, the investment is desirable.

NPV (Net present value)

The NPV is the discounted value of the future cash flows of the investment at the required rate of return. If the NPV is equal to zero, it means that the investor will receive a return equal to his or her required rate of return and that the required rate of return is equal to the IRR. If the value is positive, it means that the IRR is greater than the required rate of return and vice versa. If the NPV is negative, the required return is greater than the IRR. The equation to calculate the NPV or IRR is:

$$NPV = 0 = P_0 + P_1/(1+IRR) + P_2/(1+IRR)^2 + P_3/(1+IRR)^3 + \ldots + P_n/(1+IRR)^n$$

Where

P_0, $P_1 \ldots P_n$ equals the cash flow in periods 0, 1…n, respectively

IRR = the internal rate of return

NPV = the net present value

Future cash flows

To evaluate a project or investment, the future cash flows of the project or investment need to be determined. The cash flow is simply the cash that went into the investment or project, minus the cash that came out of the investment, or project. Future cash flows are an uncertainty and are based upon certain assumptions. The investor needs to determine what the cash flow of the investment will be throughout the investment term, as well as the redeemable value of the investment at the end of the investment term.

Discounted cash-flow analysis

Discounted cash flow analysis is the method used to calculate the NPV of an investment by discounting projected future cash flows. The possibility of errors in projecting future cash flows that can lead to investors making bad investment decisions, is called forecasting risk (Firer *et al*., 2008).

In April 1992, the 5000-acre, $3.9 billion theme park Euro Disney opened for business east of Paris, only to lose about $2.5 million a day by the end of the first fiscal year. The Cape Town based theme park Ratanga Junction, which cost R350 million to develop, showed a loss of R65 million in 2000 (Firer *et al*., 2008). Both theme parks failed, because considerably

fewer people visited the parks than was estimated at the time the investment decision was made.

Firer *et al*. (2008) suggest that the investor should ask ‘what if’ questions to evaluate cash flow and NPV estimates, to assess the degree of forecasting risk and to identify those components that are the most critical to the success or failure of the investment (Firer *et al*., 2008). The degree of forecasting risk in cash flow and NPV models should be managed in an organised way.

When an investor investigates a new investment opportunity and estimates the NPV based on projected cash flows, s/he should test the impact that possible errors in those projections will have on the NPV of the investment and possibly on the investment decision. Firer *et al*. (2008) suggest scenario analysis to examine the variances in projected cash flows by using the initial calculated NPV as a base case scenario and asking ‘what if’ questions to investigate alternative scenarios (Firer *et al*., 2008). Investors should identify the critical components to success or failure of the investment and place an upper and lower bound on these components and then investigate the impact of the different assumptions about the future on the estimates.

Scenario analysis, as suggested by Firer *et al*. (2008), should start by estimating the base case scenario, followed by the worst case scenario. This will tell the investor what the minimum NPV of the investment is, or what the investor risks losing by accepting the investment opportunity. To estimate the worst case scenario, assign the least favourable values to all variables, like low values to units sold and price per unit and high values for all costs (Firer *et al*., 2008). Thirdly, estimate the other extreme scenario, the best case scenario, by assigning the most favourable values to the different variables. There are an unlimited different number of scenarios that can be examined. As a minimum, at least two additional intermediate scenarios should be examined, by going halfway between the base amounts and the extremes (Firer *et al*., 2008).

Once the investor starts looking at alternative scenarios and most of the plausible scenarios result in positive NPVs, the investor can have some confidence in proceeding with the investment. If a substantial percentage of the scenarios look bad and result in negative NPVs, the degree of forecasting risk is high and further investigation is advised.

Payback rule

The payback rule is very commonly used in practice as an additional risk measure. The payback on a proposed investment is simply the length of time it takes to recover the initial investment capital *(*Firer *et al.,* 2008). The payback rule fails to consider any risk differences in investments, is calculated the same for risky and safe investments, has no specific cut-off period, and ignores the time value of money. It is purely an additional measure of risk. On its own, the payback period rule has severe shortcomings, but is a valuable and very simple measure for an investor to understand liquidity.

Discounted payback rule

The discounted payback rule is the length of time required for an investment's discounted cash flows to equal its initial capital cost (Firer *et al*., 2008). One of the shortcomings of the payback period rule, is that it ignores the time value of money. The discounted payback period is a variation of the payback period to address this problem.

2.7. INCOME TAX

Part of the financial planning process, is to consider the different income tax implications of an investment option. For the purpose of this study, the tax implications of an investment into a CIS holding equity (listed property and shares), fixed income and cash by a natural person, will be assessed, as well as an investment into the high value game breeding sector by a natural person. Income tax can be very complicated and for the purpose of this study, only the main principals will be discussed.

Tax on equity shares

An investment into an equity CIS will be subjected to dividend withholding tax, capital gains tax and tax on interest received. The tax on interest received only occurs because equity CIS holds a small percentage of cash in the portfolios for cash flow purposes and this will be discussed below under tax on cash. Dividend tax is a tax charged at fifteen percent when dividends are paid to shareholders and replaced STC (secondary tax on companies) after 1 April 2012. Dividend tax is paid by the withholding agent on behalf of the investor and in the case of a CIS, the withholding agent is the CIS company (SARS, 2015). Capital gains tax (CGT) will probably form the main tax component for an equity investment and arises when an investor disposes of an asset on, or after 1 October 2001 (SARB, 2015). To determine the capital gain to be included in taxable income, the proceeds of the sale, minus the base

cost (cost of asset), less the annual exclusion of R30, 000, must be multiplied by the inclusion rate of 33.3 percent. The taxable capital gain to be included in the taxable income, will be subjected to that individual's tax rate (SARS, 2015). In layman's terms, capital gains for high net worth individuals, is taxed at 33.3 percent, multiplied by the top tax bracket tax rate of 41 percent, thus equals 13.65 percent.

Tax on listed property

The interest earned on cash and capital gains tax will be taxed exactly the same as explained above on the tax on equity shares. However, listed property shares distribute or pay out rental income to shareholders, which is included in the individual's taxable income.

Tax on fixed income

Fixed income CIS mainly consists of a combination of cash and bonds. Bonds return to the investor, is made up out of interest, capital and cash of interest only. CGT is calculated in exactly the same manner as that for equity shares (as shown above). Interest received will be included in the investor's taxable income and discussed below under tax on cash.

Tax on cash

Interest received on any interest bearing instrument, is taxed in the year that the investor is entitled to receive the interest. This is not the same as tax on capital gains, where the investor has disposed of the asset. A natural person is exempt of the first R23, 800 of interest per year, if s/he is under 65 years of age and R34, 500 if s/e is 65 years and older (SARS, 2015). The amount of interest received per year, minus the exemption amount, is included in the individual's taxable income.

Tax on high value game

An investment into the high value game breeding sector, will be taxed according to agricultural- or other farming operations. Income derived and assessed losses are ring-fenced. This means that an individual can only off-set assessed losses derived in the investment in the high value game breeding sector, against income derived from the investment (South African Tax Guide, 2015). Initial expenditure, or the initial investment, is an assessed loss and can be off-set against future income derived from the investment in

the high value game breeding sector. The investor will only pay tax on income received from the investment as far as it exceeds the initial investment and any other expenses the investor incurred, if the investor is a natural person.

2.8. COMPETITIVE FINANCIAL RETURN

In order to compare an investment in the high value game breeding sector to an investment in any of the traditional asset classes, we have to compare the risk and return that these asset classes achieved over the long term for investors. This is the required rate of return, should s/he choose to invest in the high value game breeding sector. We know that an investment in the high value game breeding sector is a high risk investment, due to the big price fluctuations and the high returns achieved in the past. The ten year annual returns for the traditional asset classes in South Africa, are listed in Table 2.7. The most common benchmarks are used to compare the risk and return statistics of these asset classes. Before and after tax returns for a natural person at a 41 percent tax rate are listed for comparison. In order to calculate the after tax returns, the following assumptions were made:

a) The equity return includes a three percent dividend.
b) The rental income portion of the listed property return is six percent.
c) Over the ten year period, the return from fixed income (bonds) and cash was 100 percent interest.

Table 2.7: Ten year annual before and after tax returns of traditional asset classes in South Africa to 30 September 2015

Asset Class	Benchmark	10 year annual return		Standard deviation
		Before tax	After tax	
Equity	FTSE/JSE All Share TR ZAR	14.75%	12.87%	24.69
Property	FTSE/JSE Listed Property TR ZAR	19.38%	16.62	15.93
Fixed Income (bonds)	Beassa ALBI TR ZAR	8.25%	4.88%	7.74
Cash	STeFI Composite ZAR	7.32%	4.32%	0.37

Source: Morningstar Direct

Due to the low standard deviation and returns achieved by fixed income and cash investments over the last ten years, an investment in the high value game breeding sector should be compared to an investment into listed property and equity, which both have high risk and high returns, to determine whether the high value game breeding sector can deliver long-term competitive returns for the investor.

For an investment in the high value game breeding sector to deliver competitive financial returns, it will have to deliver an after tax return of between 12 and 17 percent. This is the same after tax return achieved on an investment in equity and listed property, with the added benefit of lowering the investment portfolio's systematic risk.

2.9. CONCLUSION

The high value game breeding sector has shown significant growth over the past decade and caught the attention of possible investors. Due to the nature of the investment, the risk associated with the high value game breeding sector is high and investors should make well-calculated investment decisions.

The literature study conducted clearly indicated that the long-term sustainability of the high value game breeding sector, is debateable. Market prices are determined by demand and supply. We know that with the introduction of intensive breeding camps and the number of livestock farms that have been converted to game ranches, the supply is likely to increase. The question remains: where will the future demand for high value game come from?

Surely, the investor who invested his or her capital in a high value game breeding company or scheme, will receive little to no benefit from the ecotourism or game product sectors. That leaves the breeding and hunting sector. It is important to evaluate the long-term demand for high value game from the breeding sector, as well as the possible demand from the hunting sector.

CHAPTER 3
RESEARCH DESIGN AND METHODOLOGY

3.1. INTRODUCTION

In this chapter the research design and methodology, population and sampling, questionnaire design, data collection and data analysis are discussed.

3.2. RESEARCH DESIGN

The research design is the roadmap of how the researcher intends to conduct the specific research. In order to supply potential investors with sufficient information and evidence to make informed investment decisions with regards to the high value game breeding sector. Industry experts were interviewed to better understand the demand that underpins the high value game breeding sector. The trophy hunting statistics were analysed to determine the wellbeing and potential growth of the trophy hunting industry in South Africa. International trophy hunters completed a questionnaire, to determine the possible future demand for rare game, colour variations of game species and trophy animals. Auction data was collected from Vleissentraal, to analyse the price movement of the different game species.

3.3. RESEARCH METHOD

The use of multiple methodologies is supported by several researchers to get a more dependable and deeper perspective on the topic (Boudreau *et al*., 2001). For this study, both quantitative and qualitative research methods were used, namely the mixed method. The mixed method provides a better understanding of the research problem and is used when one type of research, qualitative or quantitative, is not enough to address the research problem, or answer the research questions. Quantitative and qualitative strands are implemented concurrently and during the same phase of the research process. The methods are prioritised equally, and the strands are kept independent during analysis and then the results are mixed during the overall interpretation. The convergent parallel research design method, is the most recognised approach to mixing methods (Creswell & Plano Clark, 2011).

Qualitative research today is a diverse set, encompassing an array of approaches, and by common definition all these methods rely on linguistic, rather than numerical data (Elliott & Timulak, 2005). It is described as a post-positivistic approach, which seeks to understand cases in context-specific settings (Niemann *et al*., 2000). Descriptive and interpretive

approaches were followed in the qualitative research and were applied to determine the views and opinions of purposefully selected industry experts. The trophy hunting statistics were collected and analysed to complete the collection of qualitative data. Quantitative research is a positivistic approach, to emphasise the measurement and analyse the causal relationship between variables (Golafshani, 2003), described by Hara as an endless search for facts (Hara, 1995). Quantitative data was collected through the same structured interviews held with the industry experts and through questionnaires completed by international trophy hunters. The average Vleissentraal auction prices were collected from Vleissentraal, to complete the quantitative data that was collected.

3.4. THE POPULATION AND SAMPLE

The sampling of information was from three prominent groups, namely high value game breeders, trophy hunting outfitters and international trophy hunters. Six high value game breeders were selected for structured interviews. They ranged from large to medium, and were representative of the broader industry, consisting of large breeders and game breeders managing investments on behalf of investors. Five trophy hunting outfitters, hunting predominantly with international hunters, were selected for interviews. The hunting outfitters selected to represent the entire industry, were well respected and established businesses within the international hunting community, with operations in most of the nine provinces of South Africa. A database of international trophy hunters was contacted by e-mail and asked to complete a questionnaire. To validate the findings of quantitative research in the form of questionnaires, the population size should be large enough to be representative of the group they represent; hence the target number for completed returned questionnaires from international hunters, was at least 50. Only six high value game breeders and five trophy hunting outfitters were selected to conduct interviews with, due to the time constraints of this study.

3.5. THE QUESTIONNAIRE DESIGN

The questionnaires set out in Appendix C, were designed by structuring research questions while considering the research objectives. Questions were prearranged to allow a chronological flow.

3.6. DATA COLLECTION

Qualitative data was collected through structured interviews set out in Appendix A and B, with open questions, conducted with industry experts within the high value game breeding and the trophy hunting sectors in South Africa, to determine the current demand for rare and colour variant game and the size and growth rate of the trophy hunting industry in South Africa. Moreover, hunting statistics of international hunters that visited South Africa between 2011 and 2013, were collected from PHASA and compiled by the Department of Environmental Affairs and the nine provincial conservation authorities on trophy hunting in South Africa, indicating the number of hunters, the species they hunted and in which province.

Quantitative data was collected by e-mailing questionnaires to a database of international trophy hunters, in order to determine the demand for high value game from international trophy hunters. In addition, structured interviews were held with industry experts within the high value game breeding and trophy hunting sectors, where the participants were asked to answer closed questions and complete a questionnaire. The aim of the closed questions and questionnaire, was to determine the expected price movement in the high value game breeding sector. Lastly, auction data was collected from Vleissentraal Bosveld for the period 2013 to August 2015.

3.7. DATA ANALYSIS

Qualitative research requires flexibility during the analysis phase; however, in spite of the flexibility, qualitative research often employs a general strategy that provides the backbone of the analysis (Elliott & Timulak, 2005). In grounded theory, this strategy is referred to as axial coding and, in consensual qualitative research, it takes the form of a set of general domains that are used to organise the data (Elliott & Timulak, 2005). Elliott and Timulak (2005) provide a general framework for descriptive/interpretive qualitative research that was used in this study to analyse the qualitative data.

The quantitative data was analysed with the use of descriptive statistics that facilitates describing, showing or summarising the data in a meaningful way, which allows the simple interpretation of the data (AERD Statistics, 2015).

The first step is data preparation. In this study, the data collected through interviews was recorded on notes during the interview. During this stage of the analysis, the data was written down as memos and initial insights and insights started to emerge. The second step was delineating and processing meaning units, dividing the data into distinctive meaning sets. The next step was finding an overall organising structure for the data, where distinctive meaning sets are organised into different domains. The fourth step in analysing the data, was to code, or categorise the meaning units within each domain. The last step before the data could be interpreted, was to abstract the main findings. Throughout the study the validity of the analysis was assessed (Elliott & Timulak, 2005). After both qualitative and quantitative strands had been analysed, the results were mixed during the overall interpretation by using the convergent parallel research design method. Finally, the information that emerged from the data analysis was used to predict possible ranges of outcomes that were used in the discounted cash-flow models, to provide the investor with concrete data sets to assist him/her in making an informed investment decision.

3.8. CONCLUSION

This chapter has presented an outline of the research methodology used in this study. The following chapter will discuss the findings of the research, where answers will start to emerge.

CHAPTER 4
RESULTS AND DISCUSSION OF FINDINGS

4.1. INTRODUCTION

Data was collected from game breeders and hunting outfitters through structured interviews (Appendices A and B); questionnaires (Appendix C) were sent out to international hunters and data was collected from PHASA, compiled by the Department of Environmental Affairs and the nine provincial conservation authorities on trophy hunting in South Africa. Statistics on wildlife auctions were retrieved from Vleissentraal.

4.2. DISCUSSION OF FINDINGS – GAME BREEDERS

Structured interviews were held with six high value game breeders, specifically selected to be representative of all three sub-sectors (rare, colour variants and trophy game) within the high value game breeding sector. Most of the questions in the interviews were open-ended, which allowed the game breeders to answer questions spontaneously. All game breeders were assured of discretion and confidentiality. Due to the nature and sensitivity of some of the questions, no direct links between statements and breeders were provided in this study. The interviews held with the six industry experts, aimed to determine their views regarding the high value game breeding sector specifically for the next five to ten years and to obtain a deeper understanding of the industry.

Out of the six participating game breeders, the first animals were fenced in in 1981 and the game breeder that entered the industry last, did so in 2008. The game breeders had breeding projects in three provinces, namely the Free State, Western Cape and Limpopo. The common denominator of why they currently are in the high value game breeding sector, was financial gain, although their reasons for entering the high value game breeding sector varied from diversification, to a lifelong dream. The six game breeders' exposure to the different sub-sectors are set out in Table 4.1. Only one game breeder did not have exposure to colour variations of game species and one breeder did not have any exposure to rare game. However, all six participating game breeders had exposure to trophy animals.

Table 4.1: Game breeders' exposure to the different sub-sectors

	Breeder A	Breeder B	Breeder C	Breeder D	Breeder E	Breeder F
When did you start to breed game?	2008	1998	1995	1991	1991	1981
Percentage investment in rare game	75%	0%	60%	30%	20%	90%
Percentage investment in colour variations of game species	20%	75%	30%	40%	75%	0%
Percentage investment in trophy game	5%	25%	10%	30%	5%	10%
Total	100%	100%	100%	100%	100%	100%

Some of the strongest views that emerged from the interviews are the following:

- The price paid per animal and the driver behind the high value game breeding sector over the short to medium term (five to ten years), was predicted to be determined by new breeders entering the market and existing breeders expanding and strengthening their gene pools. Over the long term, the participating breeders felt that the hunting market would play an important and dominating role in determining the prices paid for these animals.
- Colour variations of game species should be standardised and shortlisted by a governing body. The current trend of farmers, game breeders and wildlife agents that try to sell off any animal with a slight deviation from the norm as an exotic animal, only causes confusion in the market and scares off potential investors. Some of the colour variations will have no price premium over the standard game species in the medium- to long term, as the market evolves and standardises.
- Wildlife agents or traders should belong to a respected governing body. Currently there are numerous agents with little to no knowledge of the game they trade and these individuals do more harm than good to the industry.

- There is a saying “all the thieves are in the game breeding industry, but not everyone in the game breeding industry is a thief”. The high profits and big amount of capital that changes hands in the high value game breeding industry, have attracted many opportunistic traders that pounce on inexperienced investors.
- High value game breeding is an attractive industry and industry leaders should do more to market it, participate in rural development and collectively speak out against any unethical behaviour in the industry. One of the most concerning suspected practices, is the bribing of state veterinarians when buffalo are tested for diseases.
- Some of the major possible risks that could have a negative impact on the whole wildlife industry as seen by the participating game breeders, are land security and political interference.

The price predictions by the participating game breeders are set out in Table 4.2 below.

Table 4.2: Price predictions for five and ten years from August 2015

	Percentage price change from August 2015							
	Five years				Ten years			
	Low	High	Average	Average year-on-year decline	Low	High	Average	Average year-on-year decline
Colour variations								
Advance stage (Black Impala and Golden Wildebeest)	-90%	0%	-35%	-8.25%	-90%	0%	-60%	-8.8%
Intermediate stage (Copper Blesbuck and Kings Wildebeest)	-90%	+10%	-35%	-8.25%	-95%	-40%	-75%	-12.9%
Beginning stage (Red Oryx and White flanked Impala)	-90%	-20%	-55%	-14.8%	-95%	-75%	-85%	-17.3%
Rare game								
Sable	-50%	0%	-25%	-5.6%	-70%	0%	-40%	-8.8%
Buffalo	-50%	0%	-15%	-3.2%	-50	0%	-20%	-2.2%
Roan	-50%	0%	-30%	-6.9%	-80%	0%	-45%	-5.8%
White Rhino (if horn trade is legalised)	+30%	+300%	+140%	19.1%	+130%	+300%	+250%	13.3%
White Rhino (if horn trade is not legalised)	-60%	-40%	-50%	-12.9%	-80%	-60%	-75%	-12.9%
Trophy game								
Rare	0%	50%	25%	-5.6%	0%	75%	30%	3.5%
Colour variants	-50%	50%	10%	-2.1%	-75%	75%	5%	0.5%
Plains game	0%	50%	20%	-4.4%	0%	75%	25%	2.3%

Table 4.2 provides a summary of the expected price movements over a five- and ten year term, as perceived by the six participating game breeders. In the category colour variations, the breeders predicted very different price movement scenarios for game species in the same sub-category (advanced, intermediate and beginning stage) and one breeder in particular had a very negative view on colour variations that skewed the average result on colour variations, particularly over the five year term. Regarding the price movements on trophy animals, all the breeders were in agreement that the benchmark trophy size would

move with the price over time; for example, if a buffalo bull with a horn spread of 50 inches is currently seen as an exceptional trophy or breeding bull, that special number might be 55 inches in ten years' time. So the price of a 50-inch bull will come down over time, but the price of a super trophy will increase, due to the scarcity of these animals.

All the game breeders had more or less the same view on how the high value game breeding sector would develop in time. The main factor supporting the long term sustainability of the high value game breeding industry in the game breeders' opinion, would be a healthy trophy hunting industry. It is apparent that the greatest difference in opinion on price movements was within the colour variations of game species and especially over the five year term, and the most agreements were within the trophy sector. Although it seems that the game breeders agreed that the prices of the game in the high value sector would decline over time, there was a significant difference in the degree of the price movements.

4.3. DISCUSSION OF FINDINGS – AUCTION RESULTS

Auction data used in this study is only from auctions held by Vleissentraal Bosveld, an affiliate of Vleissentraal. Vleissentraal Bosveld hosted 53 of the 70 wildlife auctions in South Africa held by Vleissentraal from the beginning of 2015 to the 15th of August 2015. Vleissentraal Bosveld is not limited to a specific region and have auctions in most of the nine provinces of South Africa. All the auction data is available on their website (Vleissentraal, 2015). Auction results from 2013 to August 2015 are summarised in Table 4.3 tot Table 4.6 and show results on buffalo, sable, golden wildebeest and black impala. Not all the auction results are captured; only results relating to bulls, young bulls, heifers, pregnant heifers and pregnant cows. (In Table 4.3 Buffalo, Table 4.4 Sable and Table 4.5 Golden Wildebeest.) Table 4.6 contains the auction results for black impala on rams, young rams, ewes and pregnant ewes.

Auction results were grouped together for different blood lines of buffalo and sable. The average auction price per animal for 2015, excludes the Piet du Toit auction held on 13 February 2015, because of the enormous prices animals realised at that auction, which would tilt the average price per animal. For the sake of completeness, the Piet du Toit auction results are included in Table 4.3 to Table 4.6. Under the category 'bull' and 'young bull', the average price includes breeding and hunting bulls, where the price difference between the two was vast. Young hunting bulls can sell from as little as R15 000 on sable,

to R1 million for a breeding bull. The general price movement is best illustrated by the price movement of the female animals.

Table 4.3: Buffalo, average auction prices

Species	Year							
Buffalo	2013		2014		2015 to 15 August excluding Piet du Toit auction		Piet du Toit auction 13 February 2015	
	Number	Average Price	Number	Average Price	Number	Average Price	Number	Average Price
Bull	58	R1 876 836	61	R848 066	76	R336 895		
Young bull	68	R219 772	35	R610 371	13	R153 308	1	R4 600 000
Heifer	78	R501 987	100	R573 350	36	R385 417		
Heifer (pregnant)	24	R1 060 833	23	R1 660 652	11	R464 091	2	R2 700 000
Cow (pregnant)	51	R945 196	60	R1 185 833	21	R679 524	2	R4 600 000
Turnover of listed game	R236 621 000		R239 775 000		R60 847 000		R19 200 000	

Source: (Vleissentraal Bosveld, 2015)

From an analysis of the price movement of female buffalo, it is clear that there was a price increase of between 15 to 50 percent from 2013 to 2014 and a price decline of between 32 to 72 percent from 2014 to 2015.

Table 4.4: Sable, average auction prices

Species	Year							
Sable	2013		2014		2015 to 15 August excluding Piet du Toit auction		Piet du Toit auction 13 February 2015	
	Number	Average Price	Number	Average Price	Number	Average Price	Number	Average Price
Bull	191	R327 497	185	R438 084	149	R174 085		
Young bull	219	R129 338	239	R146 318	107	R56 285		
Heifer	248	R411 875	272	R610 680	118	R367 161	3	R2 016 667
Heifer (pregnant)	42	R605 595	67	R794 925	66	R589 318	6	R3 166 667
Cow (pregnant)	92	R635 109	74	R896 081	19	R753 684	2	R5 200 000
Turnover of listed game	R276 887 000		R401 690 500		R128 501 100		R35 450 000	

Source: (Vleissentraal Bosveld, 2015)

The price movement on sable followed the same trend as the buffalo price, but was not as severe. The average price increase from 2013 to 2014, was between 30 to 48 percent and the decline from 2014 to 2015, between 16 to 40 percent.

Table 4.5: Golden wildebeest, average auction prices

Species	Year							
Golden Wildebeest	2013		2014		2015 to 15 August excluding Piet du Toit auction		Piet du Toit auction 13 February 2015	
	Number	Average Price	Number	Average Price	Number	Average Price	Number	Average Price
Bull	15	R571 333	11	R769 091	19	R1 033 421	2	R1 550 000
Young bull	12	R455 833	21	R614 048	17	R564 412		
Heifer	22	R300 682	23	R395 652	26	R318 847		
Heifer (pregnant)	20	R423 000	29	R560 172	29	R500 345		
Cow (pregnant)	4	R395 000	24	R494 583	39	R531 538	7	R703 571
Turnover of listed game	R30 695 000		R58 570 000		R72 760 000		R8 025 000	

Source: (Vleissentraal Bosveld, 2015)

Although it seems that the price for golden wildebeest also peaked in 2014, the price movements were not as severe as the price movements for buffalo and sable. The average price increase from 2013 to 2014, was between 25 to 32 percent and the average price movement from 2014 to 2015, was between a 7 percent increase, to a 20 percent decrease.

The average price of black impala jumped from 2013 to 2014 with increases of between 49 and 81 percent and declined from 2014 to 2015 by between 26 to 30 percent.

The 2015 average prices for both colour variations are higher than the 2013 average prices.

Table 4.6: Black impala, average auction prices

Species	**Year**							
Black Impala	2013		2014		2015 to 15 August excluding Piet du Toit auction		Piet du Toit auction 13 February 2015	
	Number	Average Price	Number	Average Price	Number	Average Price	Number	Average Price
Ram	30	R244 333	10	R559 500	18	R644 444	3	R1 933 333
Young ram	8	R181 750	40	R377 625	37	R378 378	2	R1 300 000
Ewe	72	R251 806	67	R375 448	62	R260 323		
Ewe (pregnant)	2	R310 000	46	R562 283	35	R417 429	2	R800 000
Turnover of listed game	R27 534 000		R71 720 000		R56 350 000		R10 000 000	

Source: (Vleissentraal Bosveld, 2015)

4.4. DISCUSSION OF FINDINGS – HUNTING OUTFITTERS

Structured interviews were held with five hunting outfitters selected to represent the entire trophy, or international hunting industry. One of the hunting outfitters selected predominantly hunts in Mozambique and focuses more on selling a hunting experience of big, open, unfenced areas in rural Africa. Because of his target market and chosen hunting area, he will not market colour variations of game species and thus chose not to answer closed questions relating to price information on colour variants and trophy animals. The interview was designed to collect qualitative data through open questions that allowed hunting outfitters to elaborate on their answers and closed questions regarding possible hunting prices for high value game. Discretion and confidentiality were guaranteed for all hunting outfitters.

The hunting outfitters selected for the interview process collectively had 97 years of experience as professional hunters and 80 years of experience as hunting outfitters. Ninety-nine percent of their clients (international hunters or trophy hunters), were from Northern America.

Of the hunting outfitters' current clients, more than 95 percent had hunted plains game, and roughly 30 percent had hunted rare game, with the most popular species being buffalo, followed by sable. About 10 percent of their clients were very specific about the trophy quality they wanted to hunt and were willing to pay a premium for guaranteed trophy quality animals above that of a well representative adult animal. Less than 10 percent of their clients had hunted colour variations of game species.

When the hunting outfitters were asked about what game species clients and possible clients enquire about, the picture changed slightly. The enquiry on plains game was more or less the same as the percentage of clients who hunted plains game at 95 percent; however, the enquiry on rare game increased to 70 percent, with buffalo again seemingly the most popular. On enquiry, the percentage of specific trophy animals was about 25 percent and colour variations roughly 10 percent.

When the hunting outfitters were asked whether they thought that their clients would be interested in hunting some of the more expensive colour variations, the responses were the following:

- One of the hunting outfitters indicated that he would not market colour variations of game species to his clients.
- Another said that he did not think his clients would be interested.
- The remaining three hunting outfitters believed that their clients would like to hunt some of the more expensive colour variants, if they had already hunted rare game and only on a second or third hunting trip and at a reasonable price.

Table 4.7 sets out the average reasonable price that the hunting outfitters thought that they would be able to pay a game farmer in the 2016 hunting season for colour variations of game species and still make a profit, as determined by the three hunting outfitters who believed that their clients would like to hunt these animals.

Table 4.7: Colour variations hunting prices predictions for 2016

Species	Hunting outfitter A	Hunting outfitter B	Hunting outfitter C	Average Price $	Average Price Rands at R12/$
Golden wildebeest	$8 000	$4 000	$3 500	$5 167	R62 004
King wildebeest	$12 000	$4 000	$3 500	$6 500	R78 000
Saddleback impala	$5 000	$4 000	$2 500	$3 833	R45 996
Black Impala	$5 000	$4 000	$2 500	$3 833	R45 996
White flanked impala	$5 000	$4 000	$2 500	$3 833	R45 996
Saddleback blesbuck	$7 500	$4 000	$2 500	$4 667	R56 004
Copper blesbuck	$7 500	$3 000	$2 500	$4 333	R51 996
Copper springbuck	$5 000	$2 000	$2 500	$3 167	R38 004
Coffee Springbuck	$7 500	$2 000	$2 500	$4 000	R48 000
Cream Springbuck	$7 500	$2 000	$2 500	$4 000	R48 000
Golden Oryx	$10 000	$4 000	$2 500	$5 500	R66 000
Red Oryx	$10 000	$4 000	$2 500	$5 500	R66 000

There are large gaps between the expected prices that the hunting outfitters stated they could afford to pay the game farmers in order to sell these colour variations and still make a profit. The prices between the hunting outfitters differ from 100 percent to as much as 400 percent and it is clear that the hunting market for these colour variations is still unexplored. Even if one takes the upper band of the prices as supplied by hunting outfitter A in Table 4.7 above, the prices of these animals are much lower than the average auction prices for young bulls in 2015 as set out in Table 4.5 and Table 4.6 above.

Table 4.8 sets out the average reasonable price that a hunting outfitter is willing to pay a game farmer for exceptional trophy animals, compared to an average well representative animal (still trophy quality), as determined by the four hunting outfitters that predominately hunt in South Africa.

Table 4.8: Average price for trophy animals including horn length

Species	Average Price $	Average Price Rand at R12/$	Species	Average Price $	Average Price Rand at R12/$	Percentage increase
Impala 23”	$200	R2 400	Impala 27”	$3 125	R37 500	1462.50%
Kudu 53”	$1 750	R21 000	Kudu 60”	$7 750	R93 000	342.85%
Sable 40”	$4 800	R57 600	Sable 45”	$11 875	R142 500	147.40%
Buffalo 40”	$9 000	R108 000	Buffalo 45”	$18 000	R216 000	100%
Roan 26”	$6 000	R72 000	Roan 30”	$11 625	R139 500	93.75%

Table 4.8 illustrates that hunting outfitters are willing to pay a premium for exceptional trophies and the financial benefit for a game farmer to ensure that he has exceptional genetics on his farm and the importance to manage those genetics.

According to the hunting outfitters, the following are the positive and negative factors that would influence the growth of the trophy hunting industry in South Africa:

- Positive factors
    - South Africa is a safe and easily accessible hunting destination compared to the rest of Africa.
    - The trophy quality of game in South Africa is superior to other hunting destinations in Africa.
    - The weakness of the South African rand makes South Africa an affordable hunting destination.

- Negative factors
    - Bad publicity hanging over South Africa, especially regarding the intensive breeding of lions, that have spilled over to the high value game breeding sector.
    - Strong competition is coming from Namibia to become the most desirable hunting destination, because they have a wider range of game available to hunt than in the past, due to imports from South Africa and because the hunting areas and farms are generally larger than the hunting farms in South Africa.
    - Due to the cost of land and the increasing popularity of intensive breeding in South Africa, many hunting farms have been divided into camps. Generally the hunting outfitters prefer a minimum camp size of 2 000 hectares in the Kalahari and 1 000 hectares in the Bushveld.

4.5. DISCUSSION OF FINDINGS – INTERNATIONAL HUNTERS

Data on international or trophy hunters was collected through questionnaires that were e-mailed to a database of international hunters from one of the assisting hunting outfitters. In addition, data on trophy hunting in South Africa was received from PHASA, compiled between 2011 and 2013 by the Department of Environmental Affairs and the nine provincial conservation authorities. The 2014 hunting statistics will only be available in November 2015 and will thus not form part of this study.

4.5.1. Trophy hunting statistics

Table 4.9: Trophy hunting statistics

	2013	2012	2011
Number of trophy hunters that visited South Africa	7 656	8 387	9 138
Number of hunters from USA	4 233	4 304	4 702
Number of indigenous species hunted	43 332	39 214	47 930
Total cost of indigenous species hunted in US dollars	$77 873 981	$67 042 285	$93 956 725
Average exchange rate R/$	R9.49	R8.21	R7.25
Total SA Rand cost	R739 179 828	R550 417 160	R681 186 256

Source: Department of Environmental Affairs

The number of international hunters that visited South Africa declined year-on-year from 2011 to 2013, although the number of animals hunted increased from 2012 to 2013, but is still lower than the number of animals hunted in 2011. Table 4.9 is a summary of the trophy hunting statistics received from PHASA. Although the trophy hunting industry in South Africa is strong, with a nearly R740 million turnover in game sold in 2013 alone, it is concerning that the number of hunters has declined year-on-year from 2011 to 2013, despite a weakening South African rand against the US dollar over the same period. The most international hunters come from the USA. The number of hunters from the USA declined by 10 percent from 2011 to 2013, compared to a 23 percent decline of international hunters from the rest of the world.

In 2013, impala topped the list of the indigenous species that was the most popular to hunt and there were eight species of which more than two thousand animals were hunted. Table 4.10 lists the eight most popular species hunted as well as their contribution to the total turnover of game sold to international hunters.

Table 4.10: Most popular plains game species hunted

Species	Number hunted in 2013	Average cost per animal to hunt in US dollars	Total cost in US dollars	Total Cost in SA rands
Impala	5 697	$415	$2 364 255	R22 441 508
Warthog	3 849	$395	$1 520 355	R14 431 210
Kudu	3 519	$1 870	$6 580 530	R62 462 391
Blesbuck	3 354	$455	$1 526 070	R14 485 456
Springbuck	2 945	$412	$1 213 340	R11 517 023
Blue Wildebeest	2 694	$1 020	$2 747 880	R26 082 877
Oryx	2 585	$1 370	$3 541 450	R33 615 443
Burchell Zebra	2 492	$1 275	$3 177 300	R30 158 932

Source: Department of Environmental Affairs

Buffalo topped the list of the most popular rare game species to hunt, at 737 buffalo hunted by international hunters in 2013 alone. In addition, the turnover of buffalo hunted, was almost double that of the species in second place, the sable, at 536 animals hunted. Table 4.11 lists the number of rare game hunted in 2013, as well as their contribution to the total turnover of game sold to international hunters.

Table 4.11: Most popular rare game species hunted

Species	Number hunted in 2013	Average cost per animal to hunt in US dollars	Total cost in US dollars	Total Cost in SA rands
Buffalo	737	$13 000	$9 581 000	R90 942 852
Sable	536	$9 400	$5 038 400	R47 824 493
Bontebok	160	$1 900	$304 000	R2 885 568
Roan	115	$10 420	$1 198 300	R11 374 264

Source: Department of Environmental Affairs

Springbuck colour variations top the list of colour variations hunted in 2013, as illustrated in Table 4.12. The springbuck colour variations are quite popular with international hunters, because of the so-called springbuck slam, which consists of hunting a black, white, copper and common springbuck. Hunters paid the largest premium for the copper springbuck, a premium of 258 percent on top of the price of a common springbuck. Although golden wildebeest is listed under the classification of indigenous species, not one had been hunted between 2011 and 2013.

Table 4.12: Colour variations of game species hunted in 2013

Species	Number hunted in 2013	Average cost per animal to hunt in US dollars	Average cost of common species	Percentage premium for colour variation
Black Springbuck	357	$695	$412	69%
White Springbuck	242	$1 065	$412	158%
Copper Springbuck	154	$1 475	$412	258%
Yellow Blesbuck	1	$1 000	$455	120%
White Blesbuck	145	$760	$455	67%

Source: Department of Environmental Affairs

4.5.2. International hunters' questionnaire results

The questionnaire was sent to a database of 463 international hunters from both genders and different age groups, but predominantly from the USA. The database was randomly divided into two equal groups; group one contained 231 international hunters and group two 232 international hunters. Only 67 questionnaires were received back, 30 from group one and 37 from group two. The majority of the respondents were male, apart from two female respondents, and all but three of the respondents had previously been on a hunting trip outside their home country. The response rate of the 463 international hunters was very low at 14.47 percent, as per Table 4.13.

Table 4.13: Response analysis

International hunters	Questionnaires sent out	Completed Questionnaires returned	Response rate (%)
Group one	231	30	13%
Group two	232	37	16%
Total	463	67	14.47%

The age distribution and number of times hunters had previously been on a hunting trip outside of their home country, are shown in Tables 4.14 and 4.15. Eighty-three percent of respondents were over 50 years of age and 59 percent of respondents had been on three or more hunting trips outside their home country.

Table 4.14: Age distribution

Age	Number	Percentage
18 - 30	0	0%
31 - 40	2	3%
41 - 50	9	14%
51 - 60	20	30%
60+	35	53%
Total	66	100%

Table 4.15: Hunting trips outside of home country

Number of times hunter had been on a hunting trip outside of his/her home country	Number	Percentage
Never	3	5%
Once	18	27%
Twice	6	9%
Three times	9	14%
More than three times	30	45%
Total	66	100%

The international hunters were generally older than 50 years of age and more than two thirds of them had gone on more than one hunting trip outside of their home country.

4.5.2.1. Colour variations of game species

The questionnaires sent out to both groups were identical, except for the question that asked the participating international hunters whether they would be interested in hunting particular trophies if they were available at a reasonable price. The trophies included the following colour variations (Table 4.16):

Table 4.16: Colour variations of game species

King Wildebeest	**Black Impala**	**Saddleback Blesbuck**
Golden Wildebeest	**Copper Springbuck**	**Copper Blesbuck**

The question to group one only read: *Would you be interested in hunting the following trophies if they were available at a reasonable price?* Out of the 30 respondents in group one, 23, or 77 percent of respondents indicated that they would be interested in hunting one or more of the colour variations of game species listed in the question. Figure 4.1 is a summary of the response from group one and illustrate the percentage of international hunters that indicated that they would like to hunt the specific colour variation of game species.

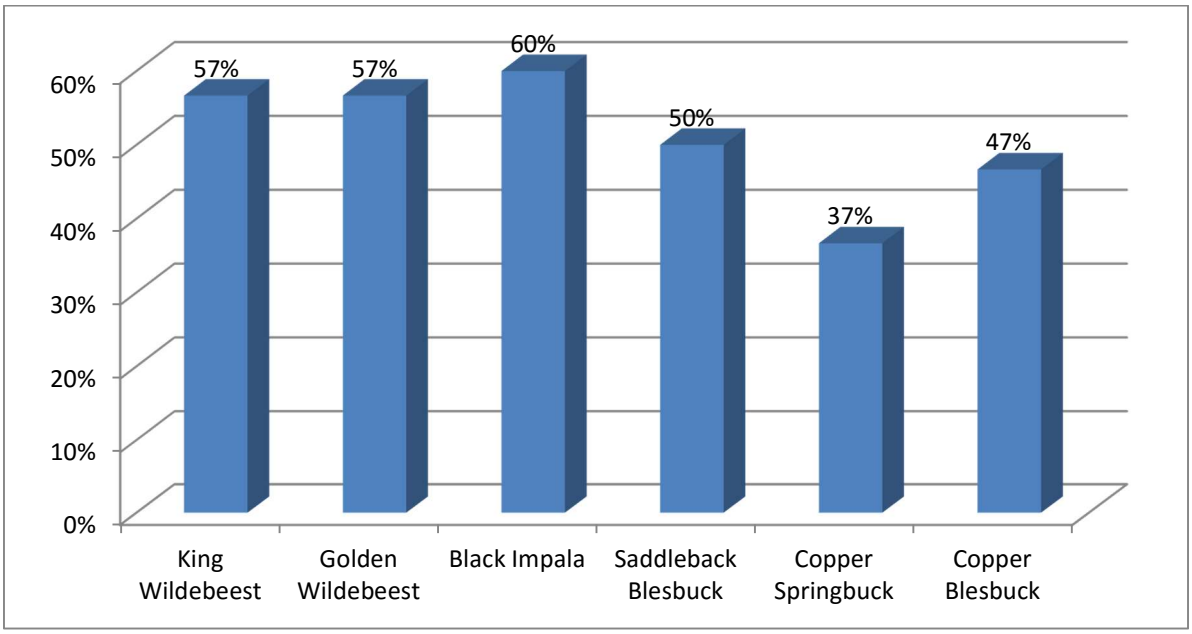

Figure 4.1: Summary of the response from group one

The response from group one was very positive. Interestingly, the colour variation that the smallest number of international hunters indicated that they would like to hunt, was the copper springbuck, at 37 percent; however, in 2013, 154 copper springbuck were hunted at an average cost of $1475 per animal, as shown in Table 4.12. The black impala was the most popular colour variation: 60 percent of international hunters indicated that they would like to hunt a black impala. The two wildebeest colour variations came in at 57 percent.

The same question was put to group two, except that the prices in Table 4.17 per trophy were included. The prices included in the questionnaire, were the average prices that the hunting outfitters thought they would be able to pay a game farmer for the colour variations of game species as set out in Table 4.3, roughly rounded to an even thousand. Out of the 37 respondents in group two, 14, or 38 percent indicated that they would be interested in hunting one or more of the colour variations of game species listed in the question. Figure 4.2 is a summary of the response from group two.

Table 4.17: Price included on questionnaire for group two

Price per trophy	Price per trophy	Average price for common species
King Wildebeest	$5 000	$1 020
Golden Wildebeest	$5 000	$1 020
Black Impala	$4 000	$415
Saddleback Impala	$4 000	$415
Copper Springbuck	$3 000	$412
Copper Blesbuck	$4 000	$455

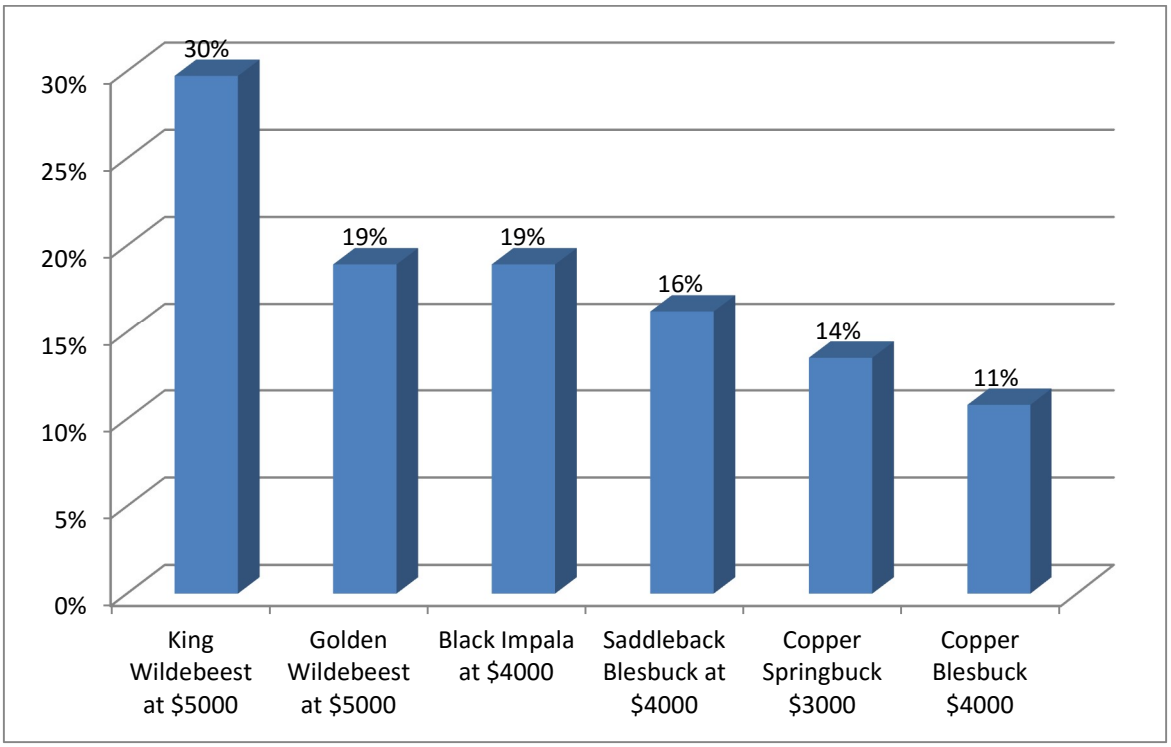

Figure 4.2: Summary of the response from group two

With the inclusion of price per animal, the willingness to hunt these colour variations declined significantly from 77 percent of respondents that were initially interested to hunt these colour variations, to 38 percent. Table 4.18 compares the prices included per animal on the questionnaire, to the average prices that the hunting outfitters predicted that they could pay the game farmer and still be able to sell the colour variations of game species, as per Table 4.7 above.

Table 4.18: Questionnaire price vs hunting outfitter price

Species	Hinting outfitter average price to pay the game farmer	Price on questionnaire	Hunting outfitter average price plus 25% mark-up
King Wildebeest	$6 500	$5 000	$8 125
Golden Wildebeest	$5 167	$5 000	$6 458
Black Impala	$3 833	$4 000	$4 791
Saddleback Blesbuck	$4 667	$4 000	$5 833
Copper Springbuck	$3 167	$3 000	$3 958
Copper Blesbuck	$4 333	$4 000	$5416

The price that the hunting outfitters would need to charge the international hunters to sell these colour variations, exceeds the price on the questionnaire sent to group two, from a 20 percent increase on black impalas, to a 62.5 percent increase on king wildebeest. It is apparent that the current hunting market for colour variations is price sensitive, with a clear drop in interest between group one that had no specific price linked to the question and group two, where a price with a significant increase on the common species was included in the questionnaire as per Table 4.17.

4.5.2.2. Trophy and rare game

Figure 4.3 lists the factors that respondents rated as very high or high in contributing towards a memorable and enjoyable hunting safari. Seventy-three percent of respondents said that the SCI trophy quality of the game they hunt on a hunting trip, is of high to very high importance.

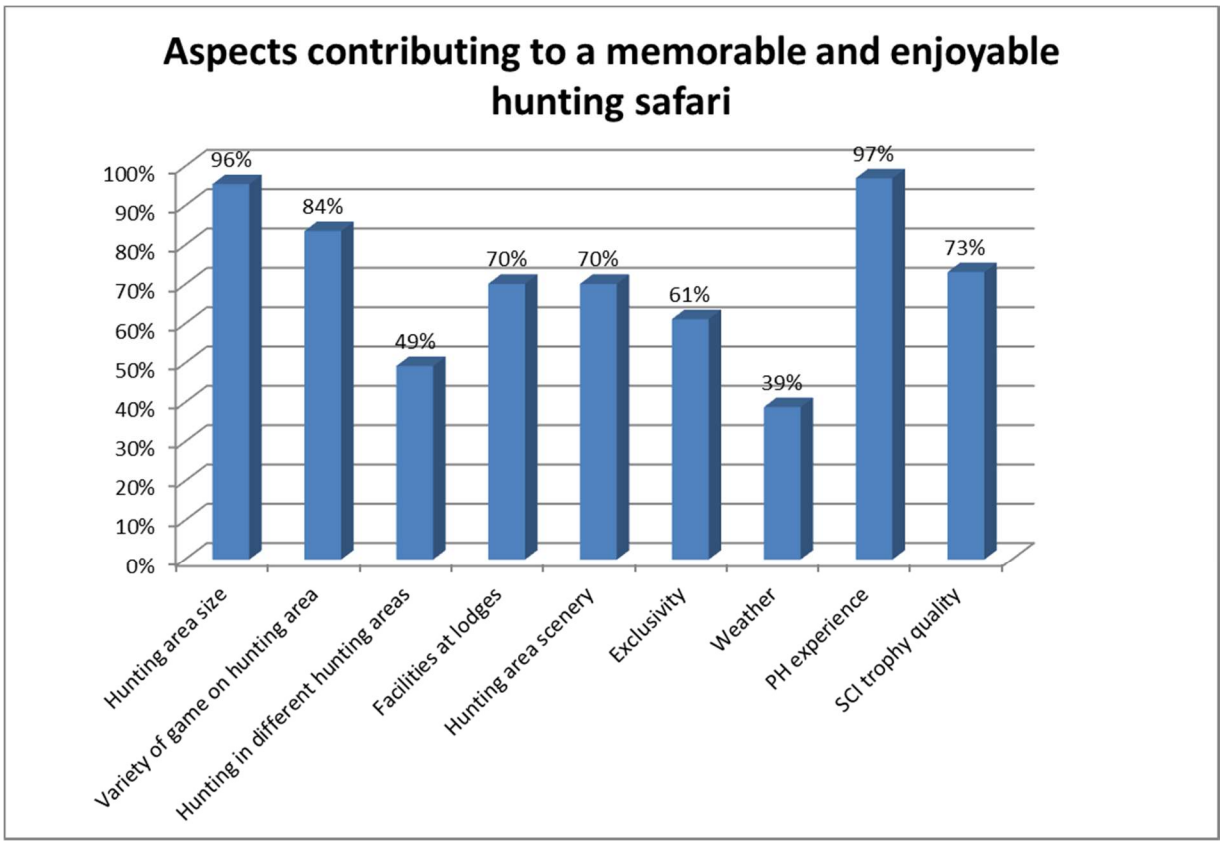

Figure 4.3: Aspects contributing to a memorable and enjoyable hunting safari

Additional vital information to take from Figure 4.3, is that 96 percent of respondents preferred a large hunting area with minimal visible fences and 84 percent of respondents would like to have a big population and variety of game to select from per hunting area.

Each respondent was asked to rate his/her top five most desirable trophies to hunt in South Africa. Buffalo topped the list of the most desirable trophy, with 93 percent of respondents including a buffalo in their list of top five most desirable trophies available in South Africa. Sable came in at fifth place and was included in 43 percent of respondents' top five lists. Figure 4.4 graphically illustrates the results of the top five most desirable trophies to hunt in South Africa.

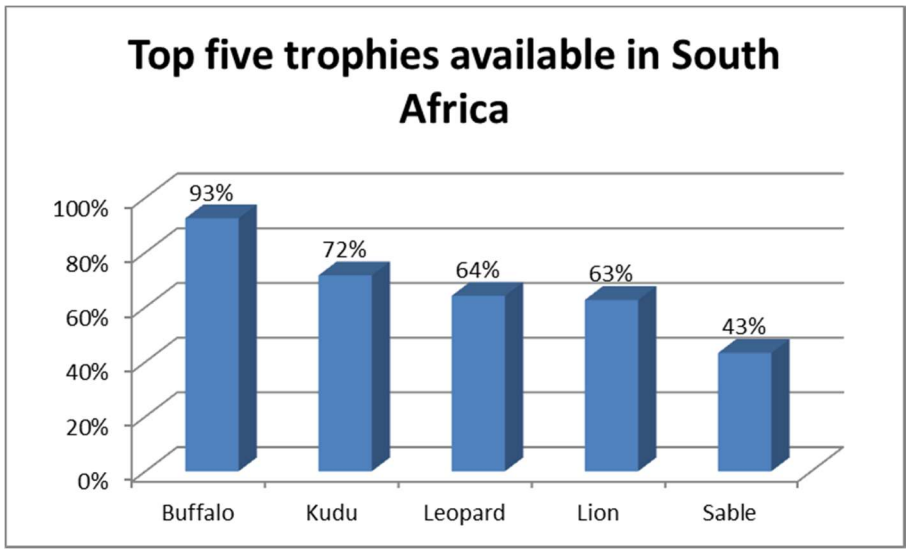

Figure 4.4: Top five trophies available in South Africa as per questionnaire results

4.6. CASH-FLOW MODELLING

The investment horizon of an investment into trophy game is much longer than an investment into rare or colour variations of game species and not generally available through investment companies. For this reason the result analysis and cash flow model testing were done only on rare game and colour variations of game species.

The first step in cash flow modelling, is to determine the base case scenario, by assigning the expected values to all variables, followed by the worst case scenario, by assigning the least favourable values to all variables and the best case scenario by assigning the most favourable values to the different variables.

There is an unlimited number of scenarios that can be examined. In this study, two more scenarios were examined, by going halfway between the base case and the best- and worst case scenarios.

The average price movement predictions from the six game breeders set out in Table 4.2, was used as a starting point to determine the base case, worst case and best case scenarios. Information gathered from the hunting outfitters and international hunters, was compared to the information retrieved from the game breeders, to establish whether the information was supportive or contradicting.

The five- and ten year price movement predictions made by the participating game breeders, are set out in Table 4.2. The average price decline for the four game species that were examined through cash flow modelling, are listed in Table 4.19.

Table 4.19: Average price decline over five and ten years predicted by the six participating game breeders

Species	5 Years	10 Years
Buffalo	-15%	-20%
Sable	-25%	-40%
Golden wildebeest	-35%	-60%
Black Impala	-35%	-60%

About 30 percent of the participating hunting outfitters' clients had hunted rare game and 70 percent of their clients enquired about rare game or showed an interest in hunting rare game, specifically buffalo and sable. The questionnaires sent out to the international hunters, also indicated that there was a strong demand for hunting buffalo and sable supported by the international hunting statistics. No strong conflicting information was retrieved to question the price predictions made by the game breeders on rare game, specifically buffalo and sable; the results were in fact complementary and supported the predictions.

Fewer than 10 percent of the participating hunting outfitters' clients had hunted colour variations of game species and only about 10 percent of their clients enquired about colour variations. Three of the hunting outfitters indicated that they thought their clients would hunt some of the colour variations but only after they had hunted rare game and maybe on a second or third hunting trip.

The results were not that negative, considering that 77 percent of international hunters showed interest in colour variations and almost 60 percent of the international hunters that completed the questionnaire had already been on three or more hunting trips outside of their home country and the fact that the colour variations had not been actively marketed in the hunting communities.

However, it seemed that the colour variation hunting market was price sensitive and that the prices would have to come down dramatically before there would be a hunting demand. All the results regarding the price movement of colour variations of game species, point in the

same direction. The only conflict is the amount of time it will take to move out of a market supported by new and existing game breeders to a market supported by hunters. The price of golden wildebeest bulls and black impala rams would roughly need to decline by 90 percent before the price is in the average range the hunting outfitters think they would be able to pay the game farmers in order to sell these trophies. One of the game breeders was of the opinion that we would reach this 90 percent decline within the next five years and that the price would stabilise thereafter. The other game breeders were of the opinion that we would only reach this stage much later, more than ten years from now.

The results on colour variations were conflicting, with both extreme ends of the spectrum positively and negatively covered. This indicates that the risk in investing in colour variations will be greater than the risk of investing in rare game; however, the price predictions of the game breeders were supported by the results and findings of the study.

4.6.1. Price scenarios

Table 4.20 to Table 4.23 show the different price movement scenarios predicted by the participating game breeders that were used in the cash flow modelling. The cumulative price movement is the total percentage price movement predicted over five and ten years for the different scenarios. The annual price movement is the percentage price movement per year based on the cumulative price movement. The ten year annual price movements were used in the cash flow models, except for the two colour variations where the worst case scenario was calculated on a 90% price decline in total for the first five years, with a stable price for the next five years.

Table 4.20: Buffalo price movement scenario

Buffalo	**5 year price movement**		**10 year price movement**	
	cumulative	annual	cumulative	annual
Best case	0%	0%	0%	0%
Good case	-7.5%	-1.55%	-10%	-1.05%
Base case	-15%	-3.2%	-20%	-2.21%
Bad case	-32.5%	-7.56%	-35%	-4.22%
Worst case	-50%	-12.94%	-50%	-6.7%

Table 4.21: Sable price movement scenario

Sable	5 years price movement		10 years price movement	
	cumulative	annual	cumulative	annual
Best case	0%	0%	0%	0%
Good case	-12.5%	-2.64%	-20%	-2.21%
Base case	-25%	-5.59%	-40%	-4.98%
Bad case	-37.5%	-8.97%	-55%	-7.67%
Worst case	-50%	-12.94%	-70%	-11.34%

Table 4.22: Golden wildebeest price movement scenario

Golden Wildebeest	5 years price movement		10 years price movement	
	cumulative	annual	cumulative	annual
Best case	0%	0%	0%	0%
Good case	-17.5%	-3.77%	-30%	-3.5%
Base case	-35%	-8.25%	-60%	-8.76%
Bad case	-62.5%	-17.81%	-75%	-12.94%
Worst case	-90%	-36.9%	-90%	-20.57%

Table 4.23: Black impala price movement scenario

Black Impala	5 years price movement		10 years price movement	
	cumulative	annual	cumulative	annual
Best case	0%	0%	0%	0%
Good case	-17.5%	-3.77%	-30%	-3.5%
Base case	-35%	-8.25%	-60%	-8.76%
Bad case	-62.5%	-17.81%	-75%	-12.94%
Worst case	-90%	-36.9%	-90%	-20.57%

The one critical factor for this study, is the price movement on the different species and for that reason the breeding variables like conception rate and conception age, are a constant through the different case scenarios.

4.6.2. Investment models

Two different investment models were examined on the selected four species.

- Model 1: Fifty percent progeny split

  All the initial cost related to the purchase of the animals is the investor's cost and includes the cost of the animals, transportation and insurance (optional).

  The infrastructure cost and the day-to-day management of the animals is the responsibility of the investment company and includes animal feed costs, camp maintenance and the general management of the animals.

  Specific veterinarian cost on initial animals purchased is for the investor's account and veterinarian cost on the progeny is covered by the proceeds of sales before any money is paid to the investor or investment company. The initial purchased animals are the property of the investor and stay the property of the investor throughout the investment term. If any of the initial animals purchased should be sold, the proceeds will go to the investor. The progeny will be split equally between the investor and the investment company.

- Model 2: Fixed management cost per animal, plus a ten percent commission on any sales.

  The initial cost related to the purchase of the animals is for the investor's account and includes the cost of the animals, transportation and insurance (optional). The investor also pays a fixed annual management fee per animal. For the purpose of this study that fee will be R2 500 on all species.

  The investment company is responsible for the day-to-day management and all other cost relating to the wellbeing of the animals, including veterinarian costs. The investor is charged R2 500 per animal per year, as well as a 10 percent commission on all sales. All the animals are the property of the investor.

In order to assist the investor with the investment decision the NPV, IRR, payback period and discounted payback period were calculated and compared with the use of cash flow modelling. In order to compare the results of the different species, the same required rate of return of 15 percent per annum will be used; a conception rate of 95 percent with no animal deaths over a ten year term, with an equal split between male and female progeny.

4.6.3. Buffalo

The initial buffalo prices are listed in Table 4.24 and the calculation is based on the assumption that a buffalo heifer will be impregnated for the first time at the age of plus-minus 37 months and she will deliver her first calf at the age of plus-minus 49 months with a 15-month calving interval. The initial investment will consist of one breeding bull and twenty pregnant heifers. The investment plan is to sell all the bull calves at an age of plus-minus 15 months and to manage the female production animals at a quantity of 29 animals and that the first 20 pregnant cows to be sold will be the initial heifers bought. After the investment term, all animals will be sold and due to the age of the breeding bull, it will be sold for R80 000. The calculations are based on an initial investment of R10, 282,000.

Table 4.24: Price per buffalo August 2015:

Buffalo	Price per Animal
Breeding bull	R500 000
Cow (pregnant)	R680 000
Heifer (pregnant)	R460 000
Heifer (+- 30 months old)	R380 000
Heifer (+- 15 months old)	R200 000
Bull calves	R25 000

The buffalo herd growth and sales are set out in Figure 4.5:

Buffalo											
		Months									
Estimated herd size	Purchase	15	30	45	60	75	90	105	120		
Breeding Bull	1	1	1	1	1	1	1	1	1		
Cows (pregnant)	0	20	20	20	20	20	20	20	20		
Heifers (pregnant)	20	0	0	9	9	9	9	9	9		
Total pregnant animals	**20**	**20**	**20**	**29**	**29**	**29**	**29**	**29**	**29**		
Heifers (+- 10 months)	0	9	9	9	9	9	9	9	9		
Heifers (+- 25 months)	0	0	9	9	9	9	9	9	9		
Bull Calves (+- 10 months)	0	10	10	10	10	10	10	10	10		
Herd size	21	40	49	58	58	58	58	58	58		
	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Breeding Bull											1
Cows (pregnant)				0	9	9		9	9	9	20
Heifers (pregnant)											9
Heifers (+- 30 months)											9
Heifers (+-15 moths)											9
Bull Calves (+- 15 months)	0		10	10	10	10		10	10	10	10
Total herd size	21		30	39	39	39		39	39	39	0

Figure 4.5: Buffalo herd growth and sales

Figure 4.5 illustrates how the buffalo herd will grow and how the numbers will be managed through sales. Column two is the initial animals purchased and the progeny growth is indicated by column three to ten with a fifteen month calve interval. The total herd size is managed to stay below forty animals through sales as indicated in the sales section of figure 4.5. The sales of animals generates the cash flow used in the cash flow model. Table 4.25 contains the investment cash flow results for an investment in buffalo following both investment models at a 15 percent required rate of return.

Model 1: The NPV is positive and the investor receives his initial capital back in five years, in all but the worst case scenario. In the worst case scenario, the investor only receives his

initial capital back in seven years and the IRR is 13.27%. The cash flow calculations for model 1 are set out in Appendix D.

Model 2: In all the scenarios, model 2 delivers better returns for the investor than model 1 and the NPV is positive in all the scenarios. The payback periods are very similar to that of model 1, except for the bad case scenario where the investor will only receive his initial capital back in seven years. Because the investor pays a management fee per animal per year, the cash flow for year one and year six are negative. This means that the investor will have to make a payment to the investment management company during these years. The cash flow calculations for model 2 are set out in Appendix E.

Table 4.25: Cash flow results for an R10, 282,000 investment in buffalo, based on the different price prediction scenarios:

Buffalo	**Model 1 50% progeny split**				**Model 2 Fixed cost per animal plus 10% sales commission**			
Scenarios	NPV	IRR	Payback Period	Discounted Payback Period	NPV	IRR	Payback Period	Discounted Payback Period
Best	R2 858 083	19.48%	5 years	10 years	R6 406 073	23.12%	5 years	9 years
Good	R2 180 344	18.51%	5 years	10 years	R5 421 177	22.09%	5 years	9 years
Base	R1 470 358	17.44%	5 years	10 years	R4 395 200	20.96%	5 years	9 years
Bad	R330 394	15.58%	5 years	10 yeas	R2 761 347	18.97%	7 years	10 years
Worst	-R931 551	13.27%	7 years	>10 years	R974 479	16.51%	7 years	10 years

4.6.4. Sable

The initial sable prices are listed in Table 4.26 and the calculation is based on the assumption that a sable heifer will be impregnated for the first time at the age of plus-minus 28 months and she will deliver her first calf at the age of plus-minus 36 months, with a 12-month calving interval. The initial investment will consist of one breeding bull and twenty pregnant heifers. The investment plan is to sell all the bull calves at an age of plus-minus nine months and to manage the female production animals at 29 animals. The first 20 pregnant cows to be sold, will be the initial heifers bought. After the investment term, all animals will be sold and due to the age of the breeding bull, it will be sold for R50 000. The calculations are based on an initial investment of R12, 773,000.

Table 4.26: Price per sable August 2015:

Sable	Price per Animal
Breeding bull	R250 000
Cow (pregnant)	R750 000
Heifer (pregnant)	R590 000
Heifer (+- 30 months old)	R360 000
Heifer (+- 15 months old)	R200 000
Bull calves	R15 000

The sable herd growth and sales are set out in Figure 4.6:

Sable											
Estimated herd size June	Purchase September	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years
Breeding Bull	1	1	1	1	1	1	1	1	1	1	1
Cows (pregnant)	0	20	20	20	20	20	20	20	20	20	20
Heifers (pregnant)	20	0	0	9	9	9	9	9	9	9	9
Total pregnant animals	**20**	**20**	**20**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**
Heifers (+- 6 months)	0	9	9	9	9	9	9	9	9	9	9
Heifers (+- 18 months)	0	0	9	9	9	9	9	9	9	9	9
Bull Calves (+- 6 months)	0	9	9	9	9	9	9	9	9	9	9
Herd size	21	39	48	57	57	57	57	57	57	57	57
	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Breeding Bull											1
Cows (pregnant)			0	9	9	9	9	9	9	9	20
Heifers (pregnant)											9
Heifers (+- 21 months)											9
Heifers (+-9 moths)											9
Bull Calves (+- 9 months)	0	9	9	9	9	9	9	9	9	9	9
Total herd size	**21**	**30**	**39**	**39**	**39**	**39**	**39**	**39**	**39**	**39**	**0**

Figure 4.6: Sable herd growth and sales

Figure 4.6 illustrates how the sable herd will grow and how the numbers will be managed through sales. Table 4.27 contains the investment cash flow results for an investment into sable, following both investment models at a 15 percent required rate of return.

Model 1: The NPV is positive for the three best case scenarios and the investor receives his initial capital back in six years in the worst case scenario. In the bad and worst case scenarios, the investor only achieves an IRR of 13.74% and 9.23%. The cash flow calculations for model 1 are set out in Appendix F.

Model 2: As for an investment into buffalo, model 2 delivers better returns for the investor in all the scenarios than model 1, but the required rate of return is not reached in the worst case scenario. The payback periods are slightly more favourable in model 2 for both the payback period and the discounted payback period. The cash flow calculations for model 2 are set out in Appendix G.

Table 4.27: Cash flow results for an R12, 773,000 investment in sable based on the different price prediction scenarios:

Sable	**Model 1 50% progeny split**				**Model 2 Fixed cost per animal plus 10% sales commission**			
Scenarios	NPV	IRR	Payback Period	Discounted Payback Period	NPV	IRR	Payback Period	Discounted Payback Period
Best	R5 887 828	23.17%	4 years	7 years	R12 067 901	28.23%	5 years	6 years
Good	R3 668 990	20.45%	5 years	8 years	R8 700 991	25.33%	5 years	7 years
Base	R1 265 555	17.04%	5 years	10 years	R5 108 548	21.69%	5 years	8 years
Bad	-R724 287	13.74%	5 years	>10 years	R2 186 531	18.14%	5 years	10 years
Worst	-R2 984 403	9.23%	6 years	>10 years	-R1 060 771	13.27%	6 years	>10 years

4.6.5. Golden Wildebeest

The initial golden wildebeest prices are listed in Table 4.28 and the calculation is based on the assumption that 50 percent of the golden wildebeest heifers will be impregnated for the first time at the age of plus-minus 16 months and the other 50 percent 12 months thereafter. Heifers will deliver their first calf eight months after conception, with a 12-month calving interval. F1 cows and heifers will produce 10 percent golden calves, F2's 30 percent and F3's 50 percent. The initial investment will consist of one breeding bull and twenty foundation cows pregnant from a golden bull. The investment plan is to sell all the bull calves at an age of plus-minus nine months and to manage the female production animals at plus-minus 30 animals. The first cows to be sold, will be the initial foundation cows bought. After the investment term all animals will be sold and due to the age of the breeding bull, it will be sold for R40 000. The calculations are based on an initial investment of R1, 590,000.

Table 4.28: Price per golden wildebeest August 2015:

Golden Wildebeest	Price per Animal
Breeding bull	R1 000 000
Cow (pregnant)	R530 000
Heifer (pregnant)	R500 000
Heifer (+- 30 months old)	R300 000
Heifer (+- 15 months old)	R200 000
Bull calves	R200 000
Foundation cows (pregnant)	R25 000
F1 Cows & heifers (pregnant)	R60 000
F1 Cows & heifers	R40 000
F2 Cows & heifers (pregnant)	R80 000
F2 Cows & heifers	R60 000
F3 Cows & heifers (pregnant)	R100 000
F3 Cows & heifers	R80 000
Split bull calves	R5 000

The golden wildebeest herd growth and sales are set out in Figure 4.7.

Golden Wildebeest											
Estimated herd size June	Purchase September	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years
Breeding Bull	1	1	1	1	1	1	1	1	1	1	1
Golden cows (pregnant)		0	0	0	0	0	0	0	0	0	0
Golden Heifers (pregnant)		0	0	0	0	0	0	1	1	2	2
F1 cows (pregnant)		0	0	4	13	22	19	12	4	0	0
F1 Heifers (pregnant)		0	4	9	9	7	2	0	0	0	0
F2 cows (pregnant)		0	0	0	0	0	3	10	19	21	17
F2 Heifers (pregnant)		0	0	0	0	3	7	9	6	3	1
F3 cows (pregnant)		0	0	0	0	0	0	0	0	1	6
F3 Heifers (pregnant)		0	0	0	0	0	0	0	1	5	6
Foundation Cows (pregnant)	20	20	20	20	10	0	0	0	0	0	0
Total pregnant animals	**20**	**20**	**24**	**33**	**32**	**32**	**31**	**32**	**31**	**32**	**32**
F1 Heifers (+- 6 months)		9	9	9	4	0	0	0	0	0	0
F1 Heifers (+-18 moths)		0	5	5	5	2	0	0	0	0	0
F2 Heifers (+- 6 months)		0	0	1	5	9	8	5	1	0	0
F2 Heifers (+-18 moths)		0	0	0	1	3	5	4	3	1	0
F3 Heifers (+- 6 months)		0	0	0	0	0	0	3	6	6	5
F3 Heifers (+-18 moths)		0	0	0	0	0	0	0	2	3	3
Golden Heifers (+- 6 months)		0	0	0	0	1	1	1	2	3	3
Golden Heifers (+-18 moths)		0	0	0	0	0	1	1	1	1	2
Golden Bull Calves (+- 6 months)		0	0	1	1	2	2	2	3	4	4
Split Bull Calves (+- 6 months)		10	10	12	11	10	10	9	9	8	8
Herd size	21	40	49	62	60	60	59	58	59	59	58
	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Breeding Bull											**1**
Golden Heifers (pregnant)								**1**	**1**	**2**	**2**
Golden Heifers (+- 21 months)											**2**
Golden Heifers (+-9 moths)											**3**
Golden Bull Calves (+- 9 months)				**1**	**1**	**2**	**2**	**2**	**3**	**4**	**4**
F1 cows (pregnant)						**10**	**9**	**8**	**4**	**0**	**0**
F2 cows (pregnant)									**4**	**7**	**17**
F2 Heifers (pregnant)											**1**
F3 cows (pregnant)											**6**
F3 Heifers (pregnant)											**6**
F3 Heifers (+- 21 months)											**3**
F3 Heifers (+-9 moths)											**5**
Split Bull Calves (+- 9 months)		**10**	**10**	**12**	**11**	**10**	**10**	**9**	**9**	**8**	**8**
Foundation Cows (pregnant)				**10**	**10**						**0**
Total herd size	**21**	**40**	**49**	**62**	**60**	**60**	**59**	**57**	**58**	**57**	**47**

Figure 4.7: Golden wildebeest herd growth and sales

Figure 4.7 illustrates how the golden wildebeest herd will grow and how the numbers will be managed through sales. Table 4.29 contains the investment cash flow results for an investment into golden wildebeest following both investment models provided 15 percent required rate of return.

Model: 1 The NPV is only positive for the good and best case scenarios and the investor does not receive his initial capital back for a ten year investment in golden wildebeest in the worst case scenario. In the base and bad case scenarios, the investor only achieves an IRR of 12.97% and 7.86% respectively and loses money in the worst case scenario. The cash flow calculations for model 1 are set out in Appendix H.

Model 2: Model 2 delivers superior returns for the investor in all but the worst-case scenario. The required rate of return is not reached in the bad and worst case scenarios and the investor loses money in the worst case scenario. The pay-back periods are slightly more favourable in model 2 for the best, good and base case scenarios and similar for the remaining two scenarios. The cash flow calculations for model 2 are set out in Appendix I.

Table 4.29: Cash flow results for an R1, 590,000 investment in golden wildebeest based on the different price prediction scenarios

Golden Wildebeest	**Model 1 50% progeny split**				**Model 2 Fixed cost per animal plus 10% sales commission**			
Scenarios	NPV	IRR	Payback Period	Discounted Payback Period	NPV	IRR	Payback Period	Discounted Payback Period
Best	R1 070 001	23.73%	6 years	9 years	R2 333 138	29.58%	6 years	8 years
Good	R474 247	19.42%	7 years	10 years	R1 289 299	24.42%	6 years	9 years
Base	-R180 079	12.97%	8 years	>10 years	R149 718	16.38%	7 years	10 years
Bad	-R547 357	7.86%	9 years	>10 years	-R484 720	9.62%	9 years	>10 years
Worst	-R1 201 728	-5.67%	>10 years	>10 years	-R1 568 671	-11.28%	>10 years	>10 years

4.6.6. Black Impala

The initial black impala prices are listed in Table 4.30 and the calculation is based on the assumption that 70 percent of the black impala ewes will be impregnated for the first time at the age of plus-minus 18 months and the other 30 percent 12 months thereafter. Ewes will deliver their first lambs six months after conception, with a 12-month calving interval. F1 ewes will produce 25 percent black lambs, F2's 50 percent and F3's 60 percent. The initial investment will consist of one breeding ram and twenty foundation ewes pregnant from a black ram. The investment plan is to sell all the ram lambs at an age of plus-minus 9 months and to manage the female production animals at plus-minus 30 animals. The first ewes to be sold, will be the initial foundation ewes bought. After the investment term, all animals will be sold and due to the age of the breeding ram, it will be sold for R30 000. The calculations are based on an initial investment of R1, 007,000.

Table 4.30: Price per black impala August 2015

Black Impala	Price per Animal
Breeding ram	R650 000
Ewe (pregnant)	R420 000
Ewe young	R200 000
F1 Ewe (pregnant)	R50 000
F1 Ewe young	R30 000
F2 Ewe (pregnant)	R70 000
F2 Ewe young	R50 000
F3 Ewe (pregnant)	R90 000
F3 Ewe young	R70 000
Young black rams	R150 000
Young split rams	R5 000
Foundation ewes (pregnant)	R15 000

The black impala herd growth and sales are set out in Figure 4.8.

Black Impala											
Estimated herd size June	Purchase September	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years
Breeding Ram	1	1	1	1	1	1	1	1	1	1	1
Black ewes (pregnant)		0	0	0	0	0	0	0	0	0	0
Black young ewes (pregnant)		0	0	0	0	0	2	2	3	3	6
F1 ewes (pregnant)		0	0	6	15	22	15	11	5	4	4
F1 young ewes (pregnant)		0	6	9	9	5	2	0	0	0	0
F2 ewes (pregnant)		0	0	0	0	1	5	11	17	21	12
F2 young ewes (pregnant)		0	0	0	1	4	6	6	4	1	1
F3 ewes (pregnant)		0	0	0	0	0	0	0	0	2	5
F3 young ewes (pregnant)		0	0	0	0	0	0	0	2	3	4
Foundation ewes (pregnant)	20	20	20	20	10	0	0	0	0	0	0
Total pregnant animals	**20**	**20**	**26**	**35**	**35**	**32**	**30**	**30**	**31**	**34**	**32**
F1 ewes (+- 6 months)		9	9	9	4	0	0	0	0	0	0
F1 ewes (+-18 moths)		0	3	3	3	2	0	0	0	0	0
F2 ewes (+- 6 months)		0	0	2	5	7	5	3	1	1	1
F2 ewes (+-18 moths)		0	0	0	1	2	3	2	1	1	1
F3 ewes (+- 6 months)		0	0	0	0	0	1	2	4	4	2
F3 ewes (+-18 moths)		0	0	0	0	0	0	1	1	2	2
Black ewes (+- 6 months)		0	0	0	1	2	2	3	4	6	4
Black ewes (+-18 moths)		0	0	0	0	1	1	1	1	2	2
Black Ram lambs (+- 6 months)		0	0	1	2	3	3	4	5	7	5
Split Ram lambs (+- 6 months)		10	10	12	11	9	7	7	6	7	6
Herd size	21	40	49	63	63	59	53	54	55	65	56
	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Breeding Ram											**1**
Black ewes (pregnant)											**0**
Black young ewes (pregnant)						**0**	**2**	**2**	**3**	**3**	**6**
Black ewes (+- 21 months)											**2**
Black ewes (+-9 moths)											**4**
Black Rams (+- 9 months)				**1**	**2**	**3**	**3**	**4**	**5**	**7**	**5**
F1 ewes (pregnant)					**2**	**12**	**6**	**6**	**1**		**4**
F1 young ewes (pregnant)											**0**
F1 ewes (+- 21 months)											**0**
F1 ewes (+-9 moths)											**0**
F2 ewes (pregnant)										**10**	**12**
F2 young ewes (pregnant)											**1**
F2 ewes (+- 21 months)											**1**
F2 ewes (+-9 moths)											**1**
F3 ewes (pregnant)											**5**
F3 young ewes (pregnant)											**4**
F3 ewes (+- 21 months)											**2**
F3 ewes (+-9 moths)											**2**
Split Rams (+- 9 months)		**10**	**10**	**12**	**11**	**9**	**7**	**7**	**6**	**7**	**6**
Foundation ewes (pregnant)				**10**	**10**						**0**
Total herd size	**21**	**40**	**49**	**63**	**63**	**59**	**51**	**52**	**52**	**62**	**41**

Figure 4.8: Black impala herd growth and sales

Table 4.31: Cash flow results for an R1, 007,000 investment into black impala based on the different price prediction scenarios

Black Impala	Model 1 50% progeny split				Model 2 Fixed cost per animal plus 10% sales commission			
Scenarios	NPV	IRR	Payback Period	Discounted Payback Period	NPV	IRR	Payback Period	Discounted Payback Period
Best	R1 996 506	34.48 %	5 years	6 years	R3 619 552	41.01%	5 years	6 years
Good	R1 307 785	29.79 %	5 years	7 years	R2 399 103	35.37%	5 years	6 years
Base	R563 643	22.74 %	6 years	8 years	R1 085 009	26.63%	6 years	8 years
Bad	R131 186	17.16 %	6 years	10 years	R325 012	19.33%	7 years	10 years
Worst	-R637 375	0.16%	10 years	>10 years	-R990 021	-6.36%	>10 years	>10 years

Figure 4.8 illustrates how the black impala herd will grow and how the numbers will be managed through sales. Table 4.31 contains the investment cash flow results for an investment into black impala, following both investment models provided at a 15 percent required rate of return.

Model 1: 1 The NPV is positive for all but the worst case scenario, where the investor only just receives his initial capital back for a ten year investment into black impala. The cash flow calculations for model 1 are set out in Appendix J.

Model 2: As for model 1, it is only in the worst case scenario that the investor does not achieve the required rate of return and the NPV is negative. In model 2 the investor loses money in the worst case scenario, but outperforms the returns achieved in model 1 for the other four scenarios. The cash flow calculations for model 2 are set out in Appendix K.

4.7. CONCLUSION

The aim of the data collection was to establish where the growth or support for the high-value game breeding sector would come from and what the industry experts predict the short and medium to long term price movements will be within the industry. The aim was further

to use the results retrieved and test the investment opportunity for an investment into the high value game breeding sector with the use of a cash flow model.

The general theme that emerged from the participating high value game breeders, was that they thought the market would be supported over the short to medium term by new breeders entering the market, as well as existing breeders expanding their gene pools. Over the long term, the trophy hunting industry would play an important role in support of the high value game breeding industry.

The research on the international hunting market supports a strong demand for rare game, especially buffalo, and highlights the importance of quality trophy game. There is a definite interest in colour variations of game species, but marketing and promotion of these animals will be required to create a strong demand.

The average prices of game in the high value game breeding sector followed a general trend. Prices increased steadily to early 2015, where after a downward correction followed that seemed to stabilise towards July and August of 2015. The average prices of high value game as listed in Table 4.15 to 4.18, are still higher than the current August 2015 prices; however, for the cash flow model calculations, the average 2015 prices were used. The starting prices used in the cash flow model will not make a difference to the outcome of the internal rate of return, because the price decline and eventual selling price will be subjected to the same percentage decline. The initial investment amounts used in the calculations are high and can be split between ten investors in equal shares. It is very important to start the investment or breeding herd with enough female animals to justify the high cost of a breeding bull or ram.

The cash flow models were built on successful game breeders' statistics regarding conception age, conception rate, calving intervals and split animals' colour production. No deaths to animals were accounted for and only one breeding model was followed regarding herd size management through sales. There are a variety of different investment and breeding models that could be followed.

The next chapter of the study will deal with result analysis and conclude the study.

CHAPTER 5
RESULT ANALYSIS AND CONCLUSION

5.1. INTRODUCTION

This chapter will focus on the result analysis and compare the results to traditional investment options. The primary research objectives were to determine whether the high value game breeding industry is financially sustainable, if the industry will continue to expand and whether the industry can generate long term competitive financial returns for an investor. In order to answer the primary research objective, the secondary research objectives need to be answered, namely what is the long term demand for high value game from the hunting industry and the game breeding sector? The factors that the investor should take into consideration in order to make an informed investment decision into the high value game breeding sector, will also be considered.

Data was collected from high value game breeders and trophy hunting outfitters by means of structured interviews, hunting statistics of international or trophy hunters compiled by the Department of Environmental Affairs and wildlife auction results from Vleissentraal Bosveld. Lastly, data was collected through questionnaires that were sent to two groups of international hunters. One section of the questionnaire was however worded differently to the two groups. Group one was asked if they would be interested to hunt some of the different colour variations of game species at a reasonable price, without indicating a price. For Group 2, the prices of the different colour variations were included, which seemed inflated compared to the common species.

The methodology followed to answer the research questions, was to collect all the data quantitative and qualitative simultaneously and to keep the data independent during the analysis phase. The data collected was used to construct a cash flow model on two different investment options available for investors. The two options called model 1 and model 2 are briefly discussed below. Lastly, the results were mixed during the overall interpretation phase.

Model 1: The investor is responsible for the cost associated with the purchasing and relocation of the animals, the initial animals purchased remain the property of the investor. The investment company provides the land and infrastructure and is responsible for the day

to day management of the animals. In return, the investment company is entitled to 50 percent of the progeny proceeds of the heard.

Model 2: The investor is responsible for the cost associated with the purchasing and relocation of the animals. The initial animals purchased, as well as their progeny, remains the property of the investor. The investment company provides the land and infrastructure and is responsible for the day to day management of the animals. In return, the investment company is entitled to 10 percent of any animals sold and a management fee per animal per year of R2 500-00+VAT.

5.2. RESULT ANALYSIS

The research study indicates that the high value game breeding sector will be supported by new game breeders entering the market, as well as existing breeders diversifying into more species and expanding on their current gene pools over the short- and medium term. The participating game breeders all predicted that the prices of the game in the high value game breeding industry will go down over time, to a price that can be sustained by the trophy hunting industry. There is a high probability that the prices of rare and colour variations of game species will decline over the next five to ten years, as the high value game breeding industry moves from an industry supported by new and existing breeders, to an industry supported by trophy hunters. Early signs of a price decline in the high value game breeding sector are supported by wildlife auction results that indicated that the average prices on the four selected species, declined on average by about 30 percent from 2014 to August 2015.

Over the long term, the success and sustainability of the high value game breeding sector will depend largely on the trophy hunting industry and the willingness of trophy hunters to hunt these species. The research supports a strong hunting demand for buffalo and sable, with both species making the top five most desirable trophies to hunt in South Africa, as indicated by Figure 4.4. Out of the 7656 international hunters that visited South Africa in 2013, 737, or 9.6 percent of hunters hunted buffalo and 533, or 7 percent hunted sable. This result is supported by the high number (70 percent) of international hunters that enquire about, or show interest in hunting rare game.

The results indicate that the current hunting demand for colour variations of game species is small and supported by the fact that only about 10 percent of international hunters enquire, or show interest in hunting colour variation of game species, as per the five participating

hunting outfitters. However, the research indicates that there is a curiosity among international hunters about colour variations of game species, as 77 percent of the questionnaire respondents of group 1 indicated that they would like to hunt some of the colour variations. The interest to hunt some of these colour variations declined to 38 percent in group 2, when an inflated price compared to the common species was added to the question. Three of the five hunting outfitters felt that their clients would hunt some of the colour variations, but for that to happen the prices of these animal must come down. They also felt that the hunter will only be interested if he had already hunted most of the rare game species and only if the hunter is on a second or third hunting trip to South Africa. In 2013, 357 black springbuck were hunted and according to the hunting outfitters, the so-called springbuck slam is quite popular amongst USA hunters. To complete a springbuck slam, a hunter must shoot a common-, black-, copper- and white springbuck. It is clear that there is a certain demand to hunt colour variations of game species, but in order to increase the hunting demand, prices will have to come down and the colour variation market will have to be actively marketed.

The cash flow model used to evaluate the investment opportunities in the different game species and colour variations, indicated that an investment in buffalo or sable is less risky than an investment in the colour variations. However, there is a risk return trade-off: The IRR achieved in the best case scenario, is better for colour variations than for rare game, and the IRR in the worst case scenario, is better for rare game than for colour variations of game species.

The IRR, or the return before tax and the after tax return, for an individual with a 41 percent tax rate and applicable to the different game species and colour variations of game species, are listed in Table 5.1 and Table 5.2. For an investment in the high value game breeding sector by a natural person with a 41 percent tax rate to deliver competitive financial returns, an after tax return of 12 percent or higher should be achieved.

In the cash flow calculations, the required rate of return was set at fifteen percent before tax and an after tax return of higher than 12 percent, when the IRR was higher than 15 percent, was achieved in all but one scenario: The bad case scenario for buffalo in model 1, where the IRR was 15.58 percent and the after tax return was 11.44 percent.

Table 5.1: IRR and after tax return for an investment into Buffalo and Sable

	Buffalo				**Sable**			
	Model 1 50% progeny split		Model 2 Fixed cost per animal plus 10% sales commission		Model 1 50% progeny split		Model 2 Fixed cost per animal plus 10% sales commission	
Scenario	IRR	After tax return	IRR	After tax return	IRR	After tax return	IRR	After tax return
Best	19.48%	14.59%	23.12%	17.87%	23.17%	17.49%	28.23%	21.92%
Good	18.51%	13.80%	22.09%	17.01%	20.45%	15.29%	25.33%	19.46%
Base	17.44%	12.93%	20.96%	16.06%	17.04%	12.51%	21.69%	16.40%
Bad	15.58%	11.44%	18.97%	14.37%	13.74%	9.89%	18.14%	13.49%
Worst	13.27%	10.42%	16.51%	12.29%	9.23%	6.40%	13.27%	9.56%

The results as shown in Table 5.1, indicate that an investment in buffalo and sable can deliver long term competitive financial returns. For an investment in buffalo, following investment model 2, the investor reached his investment goal in all five of the different scenarios. Regarding an investment in sable, following the same investment model, the investor only failed to reach his investment goal, or required rate of return in the worst case scenario. For both rare game species, investment model 2 delivered superior returns over model 1 in all of the different scenarios.

Table 5.2: IRR and after tax return for an investment in Golden wildebeest and Black Impala

	Golden Wildebeest				Black Impala			
	Model 1 50% progeny split		Model 2 Fixed cost per animal plus 10% sales commission		Model 1 50% progeny split		Model 2 Fixed cost per animal plus 10% sales commission	
Scenario	IRR	After tax return	IRR	After tax return	IRR	After tax return	IRR	After tax return
Best	23.73%	18.43%	29.58%	23.58%	34.48%	27.58%	41.01%	33.28%
Good	19.42%	14.75%	24.42%	19.01%	29.79%	23.49%	35.37%	28.34%
Base	12.97%	9.16%	16.38%	12.18%	22.74%	17.41%	26.63%	20.72%
Bad	7.86%	5.38%	9.62%	6.72%	17.16%	12.74%	19.33%	14.55%
Worst	-5.67%	-5.67%	-11.28%	-11.28	0.16%	0.10%	-6.36%	-6.36%

The results for the two colour variations listed in Table 5.2, also indicate that an investment in any one of these two species, can deliver long term competitive financial returns, but with more risk that an investment in any of the two rare game species. For the two colour variations, the best case scenarios deliver higher returns than for the two rare game species, but the worst case scenarios deliver negative returns for the two colour variations.

5.3. PRACTICAL CONTRIBUTIONS

The results of this study would be useful to prospective investors in the high value game breeding sector, investors who will invest through a game breeding investment project, or company, as well as current and prospective game breeders.

5.4. FUTURE RESEARCH RECOMMENDATIONS

To answer critics of the high value game breeding sector and to ensure ethical behaviour within the sector, more research should be done on the impact that selective and intensive breeding has on the ecosystem.

5.5. CONCLUSION

To conclude, the research indicates that the high value game breeding sector can deliver long term competitive financial returns and would qualify as an alternative asset class in a well-diversified investment portfolio. The investor should realise that the returns achieved over the last decade will probably not continue for the next decade.

An investment into the high value game breeding sector, should be evaluated on equal terms with any other investment in an alternative asset class. Brinson, Singer and Beebower, concluded that the long term success of an investment portfolio, is primarily determined by the asset allocation decision and carries a 91.5 percent weighting of importance towards the success of the investment (Brinson, Singer & Beebower, 1991).

Choosing the investment company in this instance, would be equally important and factors that should be considered are the following:

- Does the game breeder have enough experience in intensive breeding to ensure that optimal conception age and rate are achieved with minimal animal losses to death?
- Does the initial herd purchased come from a good gene pool with quality animals?
- Does the game breeder have a good reputation in the industry and a good distribution network to sell animals when necessary?

The result analysis shows that even with near perfect breeding conditions it is possible to lose capital and destroy value. An investment in the high value game breeding sector should not be taken lightly and investors should beware of all the different risks that might present themselves.

REFERENCES

AERD statistics, 2015. *Descriptive and Inferential Statistics.* [Online] Available at: https://statistics.laerd.com/statistical-guides/descriptive-inferential-statistics.php
[Accessed 12 February 2015].

Arora, R. K., Jain, P. K. & Das, H., 2011. *International Diversification Through Emerging Market Investment: Selection of Appropriate Portfolio Strategy,* s.l.: World Scientific Publishing Co..

Bezuidenhout, R., 2014. *Auction turnover breaks the billion-rand barrier.* [Online] Available at: http://www.farmersweekly.co.za/article.aspx?id=52740&h=Auction-turnover-breaks-the-billion-rand-barrier
[Accessed 25 January 2015].

Both, M., 2009. Matrix loaded. *Project Management Journal,* December, 3(1), pp. 12-31.

Bothma, J. d. P., 2014. Die stand van die wildbedryf in Suid-Afrika. *Game & Hunt,* pp. 72-75.

Boudreau, M. C., Gefen, D. & Straub, D. W., 2001. Validation in Information Systems Research:A Stste-of-the-art Assessment. *MIS Quarterly,* 25(1), pp. 1-16.

Brink, M. et al., 2011. Sustainable management through improved governance in the game industry. *south Africa Journal of Wildlife Research,* 41(1), pp. 110-119.

Brinson, G. P., Beebower, G. L. & Hood, L. R., 1995. Determinants of Portfolio Performance. *Financial Analysts Journal,* January-February.pp. 133-138.

Brinson, G. P., Singer, B. D. & Beebower, G. L., 1991. Determinants of Portfolio Performance II: An Update. *Financial analysts Journal,* May-June.pp. 40-48.

Brown, K., 2006. Teams in action. In: *Company culture and other things.* New York: Irwin, pp. 125-146.

Buttonwood, 2012. *The Economist.* [Online] Available at: http://www.economist.com/blogs/buttonwood/2012/02/equity-investing-0 [Accessed 29 March 2015].

Cloete, F., 2014. Risiko van beleggings in die wildbedryf. *Wild & Jag,* November.pp. 78-79.

Creswell, J. W. & Plano Clark, V. L., 2011. *designing and conducting mixed methods research.* 2 ed. California: SAGA Publications Ltd.

Dry, G. C., 2014. *Dr.* pretoria, sasas.

Dry, G. C., 2014. *Wildlife ranching industry : the South African flagship of a sustainable green economy.* [Online] Available at: http://digitool.library.colostate.edu/view/action/singleViewer.do?dvs=1428994419174~194&locale=en_US&VIEWER_URL=/view/action/singleViewer.do?&DELIVERY_RULE_ID=10&adjacency=N&application=DIGITOOL-3&frameId=1&usePid1=true&usePid2=true [Accessed 3 February 2015].

Dugmore, H., 2013. *The wildlife industry rises to the challenge.* [Online] Available at: http://www.farmersweekly.co.za/article.aspx?id=The-wildlife-industry-rises-to-the-challenge [Accessed 3 February 2015].

Elliott, R. & Timulak, L., 2005. *Descriptive and interpretive approaches to qualitative research.* [Online] Available at: http://nideffer.net/classes/GCT_RPI_S14/readings/interpretive.pdf [Accessed 12 February 2015].

fin24, 2015. *SA mulls regulating rare game breeds.* [Online] Available at: http://www.fin24.com/Economy/SA-mulls-regulating-game-breeds-20150407 [Accessed 7 April 2015].

Firer, C., Ross, S. A., Westerfield, R. W. & Jordan, B. D., 2008. *Fundamentals of corporate finance.* 4th ed. Berkshire: McGraw-Hill Higher Education.

Firer, C., Ross, S. A., Westerfield, R. W. & Jordan, B. D., 2008. *Fundamentals of corporate finance.* 4th ed. Berkshire: McGraw-Hill Higher Education.

Firer, C., Ross, S. A., Westerfield, R. W. & Jordan, B. D., 2008. *Fundamentals of Corporate Finance.* 4 ed. Berkshire: McGraw-Hill Higher Education.

Gamevest, 2014. *Executive briefing: High value game breeding.* [Online] Available at: http://www.gamevest.co.za/wp-content/uploads/2014/07/Executive-Briefing-Exotic-Game-Breeding-V6-Cape-Town.pdf
[Accessed 22 February 2015].

Gamevest, 2015. *Gamvest.* [Online] Available at: http://www.gamevest.co.za/
[Accessed 2 2 2015].

Golafshani, N., 2003. Understanding reliability and validity in qualitative research. *The Qualitative Report,* 8(4), pp. 597-606.

Goyat, S., 2011. The basis of market segmentation: a critical review of literature. *European Journal of Business and Management,* 3(9), pp. 45-54.

Groenewald, B. & York, R., 2013. *An economic outlook, The Wildlife Industry.* [Online] Available at: http://lbgh.co/Golden_Breeders_Article_-_%20An_economic_outlook_for_the_Wildlife_Industry_May_2013.pdf
[Accessed 5 February 2015].

Hamel, G., 1999. Sustainanbility in action. *Academy of Management Review.*

Hara, K., 1995. Quantitative and Qualitative Research Approaches in Education. *Education,* 115(3).

Ikona, N., 1906. *The Golden Gemsbok. A sporting story of South Africa.* [Online] Available at: http://www.golden-breeders.co.za/wp-content/uploads/2015/04/Foress-sporting-notes-and-sketches-1906.pdf
[Accessed 11 April 2015].

Memar, 2013. *Investment in exotic/rare wildlife species of high value.* [Online] Available at: https://www.merar.com/meeting-place/south-africa/agriculture/investment-in-exotic-rare-wildlife-species-of-high-value-returns-past-5-years-of/
[Accessed 6 April 2015].

Niehaus, C., 2014. The economic impact of selective breeding. *SA Jagter/Hunter,* Issue 01096, pp. 58-59.

Niemann, R. et al., 2000. Objectivity, reliability and validity in qualitative research. *Journal of Education,* 20(4), pp. 283-286.

PHASA, 2014. *PHASA.* [Online] Available at: http://www.phasa.co.za/what-is-in-the-news/phasa-press-release/item/570-revenue-from-hunting-tourists-breaks-r1-billion-mark.html
[Accessed 9 February 2015].

sage, 2011. *Desihning and conducting mixed methods research.* 2 ed. California: SAGE Publications Ltd.

SARB, 2015. *Capital Gains Tax.* [Online] Available at: http://www.sars.gov.za/TaxTypes/CGT/Pages/default.aspx
[Accessed 25 October 2015].

SARS, 2015. *ABC of Capital Gains Tax for Individuals (Issue 8).* [Online] Available at: http://www.sars.gov.za/AllDocs/OpsDocs/Guides/LAPD-CGT-G02%20-%20The%20ABC%20of%20Capital%20Gains%20Tax%20for%20Individuals%20-%20External%20Guide.pdf
[Accessed 25 October 2015].

SARS, 2015. *Dividend tax.* [Online] Available at: http://www.sars.gov.za/TaxTypes/DT/Pages/default.aspx
[Accessed 25 October 2015].

SARS, 2015. *Interest and dividends.* [Online] Available at: http://www.sars.gov.za/Tax-Rates/Income-Tax/Pages/Interest-and-Dividends.aspx
[Accessed 25 October 2015].

Skidmore, G. H., 2010. *Alternative Asset Classes: An Introduction.* [Online] Available at: https://belrayasset.files.wordpress.com/2010/01/alternative-investments.pdf
[Accessed 2 April 2015].

South African Tax Guide, 2015. *Ring-fencing of assessed losses [section 20A].* [Online] Available at: http://www.sataxguide.co.za/ring-fencing-of-assessed-losses-section-20a/ [Accessed 13 October 2105].

Steiner, S., n.d. *5 alternative asset classes to consider.* [Online] Available at: http://www.bankrate.com/finance/investing/alternative-asset-classes-to-consider-1.aspx
[Accessed 2 April 2015].

van der Merwe, M., 2014. *The game meat scheme in South Africa.* Colorado, Wildlife Ranching Symposium.

van der Merwe, P., 2014. The SA hunting industry. What is the current status?. *Game & Hunt,* 20(12), pp. 60-63.

van der Merwe, P. & Saayman, M., 2003. *Determining the economic value of game farm tourism,* Pretoria: Koedoe.

van der Merwe, P. & Saayman, M., 2014. Trophy hunting Conservation. *Wildlife Eanching,* Issue 2, pp. 147-151.

Vleissentraal Bosveld, 2015. *Vleissentraal.* [Online] Available at: http://www.vleissentraal.co.za/stats_argief.php [Accessed 17 august 2015].

Vleissentraal, 2013. *Wildboere.com.* [Online] Available at: http://media.wix.com/ugd/96f241_6718698d9e654053a22e4b830e9c1b6c.pdf [Accessed 3 April 2015].

Wildlife campus, 2013. *The trend towards game ranching in southern africa.* [Online] Available at: http://www.wildlifecampus.com/Courses/GameRanchEconomics/IntroductiontoGameRanching/TheTrendTowardsGameRanchinginSouthernAfrica/891.pdf
[Accessed 3 February 2015].

APPENDIX A:
STRUCTURED INTERVIEW GAME BREEDER

Date:

Name:

Name of business:

1. When have you entered the game breeding industry?

2. Why did you get involved in the high value game breeding industry?

3. In what sectors of the high value game breeding industry are you involved in and what is you percentage exposure towards the specific sectors?

    - Rare game
    - Colour variations of game species
    - Trophy game

4. The price of game in the high value game breeding sector have increased dramatically over the last couple of years to February 2015 with a decline in price of as much as 50% for the rest of 2015. According to you what do you think the price movements will be on the following game species over the next five and ten years?

Species	Percentage price movement five years	Percentage price movement five years
Colour variations		
Advance stage (Black impala and Golden wildebeest)		
Intermediate stage (Copper besbuck and Kings wildebeest)		
Beginning stage (Red oryx and White flanked impala)		
Rare game		
Sable		
Buffalo		
Roan		
White Rhino (if horn trade is legalised)		
White Rhino (if horn trade is not legalised)		
Trophy game		
Rare		
Colour variations		
Plains game		

5. What factors do you think will determine the long term sustainable price of game species in the high value game breeding industry?

6. What should happen for the industry to keep expanding?

7. What are the major risks that the industry face?

    - Internal
    - External

APPENDIX B:

STRUCTURED INTERVIEW HUNTING OUTFITTER

Date:

Name:

Business name:

1. How long have you been in the hunting industry?

   - As a PH (Professional hunter)
   - As a hunting outfitter

2. What are the top three countries your clients come from? Country Percentage

   A

   B

   C

3. What percentage of you clients already hunts the following?

   - Plains game
   - Rare game
   - Colour variations of game species
   - Specifically trophy game

4. What percentage of your clients enquires about the following?

   - Plains game
   - Rare game
   - Colour variations of game species
   - Specifically trophy game

5. Do you think your client would like to hunt some of the more expensive colour variations of game species?

6. If yes at what price do you think there will be a demand? Please state the price that you will pay the game farmer and no the price you will charge the client.

Species	$ Price	Species	$ Price
Golden Wildebeest	$	Copper Blesbuck	$
Kings Wildebeest	$	Copper Springbuck	$
Sadleback Impala	$	Coffee Springbuck	$
Black Impala	$	Cream Springbuck	$
White flanked Impala	$	Golden Oryx	$
Sadleback Blesbuck	$	Red Oryx	$

7. What do you think is a fair price for a game farmer to charge on the following game?

Species	$ Price	Species	$ Price
Impala 23”	$	Impala 27”	$
Kudu 53”	$	Kudu 60”	$
Sable 40”	$	Sable 45”	$
Buffalo 40”	$	Buffalo 45”	$
Roan 26”	$	Roan 30”	$

8. What do you think is the positive and negative factors that will impact the trophy hunting industry in South Africa/

- Positive
- Negative

9. What do you think is a reasonable size farm to hunt on in the following areas?

- Kalahari
- Bushveld

10. According to you what is the importance of the following factors to ensure a successful and enjoyable hunt for you client? Please rate each factor from 1-5 where 5 is very important and 1 is not important.

Factor	Rating 1-5
1. Size of hunting area.	
2. The diversity of animals available to hunt in a specific hunting area.	
3. PH (Professional hunter) experience	
4. Quality of trophies hunted	
5. The standard of the accommodation and facilities.	
6. To expose you client to different hunting areas (Bushveld, Kalahari)	
7. Admin of the hunt from booking to ensuring that the clients trophies are well take care of.	
8. Weather on the hunt.	

APPENDIX C:
HUNTER QUESTIONNAIR

Hunter questionnair

* Required

Name

Country

Sex

- Male
- Female

Marriage status

Age

- 18 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 60+

How many times have you been on a hunting safari outside of your home country?

- Never

- ○ Once
- ○ Twice
- ○ Three times
- ○ More that three times

Have you ever hunted in South Africa?

- ○ Yes
- ○ No

Aspects contribution to a memorable and enjoyable hunting safari. *

	Very High	High	Average	Low	Very Low
The size of the farm or hunting area must be large with minimal visible fences	○	○	○	○	○
Their should be a big population and variety of game to select from per hunting area	○	○	○	○	○
The hunting safari must take place in more than one hunting area (buchveld, Kalahari)	○	○	○	○	○
The facilities at the lodges must be of a high standard	○	○	○	○	○
The scenery of the hunting area	○	○	○	○	○
Exclusivity during the hunt (other guests in the lodge or other hunters present)	○	○	○	○	○

The weather conditions during your hunting safari	○	○	○	○	○
The professional hunter (PH) accompanying you should be very experienced	○	○	○	○	○
The SCI trophy quality of species hunted	○	○	○	○	○

Indicate which of the following species you have hunted.

- ☐ Blue Wildebeest
- ☐ Black Wildebeest
- ☐ Rhino White or Black
- ☐ Kudu, Greater
- ☐ Kudu, Eastern Cape
- ☐ Leopard
- ☐ Red Hartebeest
- ☐ Gemsbuck
- ☐ Springbuck
- ☐ Crocodile
- ☐ Cape Buffalo
- ☐ Sable
- ☐ Blesbuck
- ☐ Waterbuck
- ☐ Bushbuck
- ☐ Tsessebe
- ☐ Bontebuck
- ☐ Zebra
- ☐ Lechwe

- [ ] Warthog
- [ ] Caracal
- [ ] Impala
- [ ] Elephant
- [ ] Ostrich

According to you what is the top five trophies available in South Africa on the list below.

- [ ] Elephant
- [ ] White Rhino
- [ ] Leopard
- [ ] Lion
- [ ] Hippo
- [ ] Cape Buffalo
- [ ] Sable
- [ ] Waterbuck
- [ ] Eland
- [ ] Nyala
- [ ] Kudu, Greater
- [ ] Gemsbuck
- [ ] Warthog
- [ ] Zebra

Have you ever hunted any colour variations of game species?
For example white blesbuck or white, black or copper springbuck.

- ( ) Yes
- ( ) No

Would you be interested to hunt the following trophy's if they were available at a reasonable price?
King Wildebeest at $5000

- Yes
- No

King Wildebeest

Golden Wildebeest at $5000

- Yes

- No

Golden Wildebeest

Black Impala at $4000

- Yes
- No

Black Impala

Saddleback Blesbuck at $4000

- Yes
- No

Saddleback Blesbuck

Copper Springbuck $3000

- Yes
- No

Copper Springbuck

Copper Blesbuck $4000

- Yes
- No

Copper Blesbuck

According to you what is the most desirable hunting destination in the world?

Submit

Never submit passwords through Google Forms.

APPENDIX D:

BUFFALO CASH FLOW MODEL 1

Best case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 6 120 000**	**R 6 120 000**		**R 1 360 000**			**R 80 000**
Sales of progeny	**R 0**		**R 250 000**	**R 250 000**	**R 250 000**	**R 250 000**		**R 5 010 000**	**R 6 370 000**	**R 6 370 000**	**R 23 210 000**
Total Sales	**R 0**	**R 0**	**R 250 000**	**R 250 000**	**R 6 370 000**	**R 6 370 000**	**R 0**	**R 6 370 000**	**R 6 370 000**	**R 6 370 000**	**R 23 290 000**
Transport and incurance at 6%	R -582 000										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R 0	R -125 000	R -125 000	R -125 000	R -125 000	R 0	R -2 505 000	R -3 185 000	R -3 185 000	R -11 605 000
Investors cash flows		R 0	R 125 000	R 125 000	R 6 245 000	R 6 245 000	R 0	R 3 865 000	R 3 185 000	R 3 185 000	R 11 685 000
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 125 000**	**R 125 000**	**R 6 245 000**	**R 6 245 000**	**R 0**	**R 3 865 000**	**R 3 185 000**	**R 3 185 000**	**R 11 685 000**
Cumulative cash flow	R -10 282 000		R -10 157 000	R -10 032 000	R -3 787 000	R 2 458 000		R 6 323 000	R 9 508 000	R 12 693 000	R 24 378 000
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R 0	R 94 518	R 82 190	R 3 570 599	R 3 104 869	R 0	R 1 452 997	R 1 041 182	R 905 376	R 2 888 353
Net present value (NPV)	R 2 858 083										
Internal rate of return (IRR)	19.48%										
Payback period	**5 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 125 000**	**R 125 000**	**R 6 245 000**	**R 6 245 000**	**R 0**	**R 3 865 000**	**R 3 185 000**	**R 3 185 000**	**R 11 685 000**
Taxable income						R 2 458 000	R 0	R 3 865 000	R 3 185 000	R 3 185 000	R 11 685 000
Tax						**R 1 007 780**	**R 0**	**R 1 584 650**	**R 1 305 850**	**R 1 305 850**	**R 4 790 850**
Income after tax	**R -10 282 000**	**R 0**	**R 125 000**	**R 125 000**	**R 6 245 000**	**R 5 237 220**	**R 0**	**R 2 280 350**	**R 1 879 150**	**R 1 879 150**	**R 6 894 150**
Return after tax	**14.59%**										

Good case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 5 929 237**	**R 5 866 980**		**R 1 290 084**			**R 80 000**
Sales of progeny	**R 0**		**R 247 375**	**R 244 778**	**R 242 207**	**R 239 664**		**R 4 752 441**	**R 5 979 078**	**R 5 916 298**	**R 21 330 524**
Total Sales	**R 0**	**R 0**	**R 247 375**	**R 244 778**	**R 6 171 445**	**R 6 106 644**	**R 0**	**R 6 042 525**	**R 5 979 078**	**R 5 916 298**	**R 21 410 524**
Transport and incurance at 6%	R -582 000										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R 0	R -123 688	R -122 389	R -121 104	R -119 832	R 0	R -2 376 220	R -2 989 539	R -2 958 149	R -10 665 262
Investors cash flows		R 0	R 123 688	R 122 389	R 6 050 341	R 5 986 812	R 0	R 3 666 304	R 2 989 539	R 2 958 149	R 10 745 262
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 123 688**	**R 122 389**	**R 6 050 341**	**R 5 986 812**	**R 0**	**R 3 666 304**	**R 2 989 539**	**R 2 958 149**	**R 10 745 262**
Cumulative cash flow	R -10 282 000		R -10 158 313	R -10 035 924	R -3 985 583	R 2 001 229		R 5 667 533	R 8 657 072	R 11 615 221	R 22 360 483
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R 0	R 93 526	R 80 473	R 3 459 302	R 2 976 504	R 0	R 1 378 300	R 977 286	R 840 891	R 2 656 064
Net present value (NPV)	R 2 180 344										
Internal rate of return (IRR)	18.51%										
Payback period	**5 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 123 688**	**R 122 389**	**R 6 050 341**	**R 5 986 812**	**R 0**	**R 3 666 304**	**R 2 989 539**	**R 2 958 149**	**R 10 745 262**
Taxable income						R 2 001 229	R 0	R 3 666 304	R 2 989 539	R 2 958 149	R 10 745 262
Tax						**R 820 504**	**R 0**	**R 1 503 185**	**R 1 225 711**	**R 1 212 841**	**R 4 405 557**
Income after tax	**R -10 282 000**	**R 0**	**R 123 688**	**R 122 389**	**R 6 050 341**	**R 5 166 308**	**R 0**	**R 2 163 119**	**R 1 763 828**	**R 1 745 308**	**R 6 339 705**
Return after tax	**13.80%**										

Base case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 5 723 145**	**R 5 596 664**		**R 1 216 217**			**R 80 000**
Sales of progeny	**R 0**		**R 244 475**	**R 239 072**	**R 233 789**	**R 228 622**		**R 4 480 330**	**R 5 570 653**	**R 5 447 542**	**R 19 410 231**
Total Sales	**R 0**	**R 0**	**R 244 475**	**R 239 072**	**R 5 956 934**	**R 5 825 286**	**R 0**	**R 5 696 547**	**R 5 570 653**	**R 5 447 542**	**R 19 490 231**
Transport and incurance at 6%	R -582 000										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R 0	R -122 238	R -119 536	R -116 894	R -114 311	R 0	R -2 240 165	R -2 785 327	R -2 723 771	R -9 705 116
Investors cash flows		R 0	R 122 238	R 119 536	R 5 840 039	R 5 710 975	R 0	R 3 456 382	R 2 785 327	R 2 723 771	R 9 785 116
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 122 238**	**R 119 536**	**R 5 840 039**	**R 5 710 975**	**R 0**	**R 3 456 382**	**R 2 785 327**	**R 2 723 771**	**R 9 785 116**
Cumulative cash flow	R -10 282 000		R -10 159 763	R -10 040 226	R -4 200 187	R 1 510 788		R 4 967 170	R 7 752 496	R 10 476 267	R 20 261 382
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R 0	R 92 429	R 78 597	R 3 339 062	R 2 839 364	R 0	R 1 299 382	R 910 528	R 774 266	R 2 418 731
Net present value (NPV)	R 1 470 358										
Internal rate of return (IRR)	17.44%										
Payback period	**5 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 122 238**	**R 119 536**	**R 5 840 039**	**R 5 710 975**	**R 0**	**R 3 456 382**	**R 2 785 327**	**R 2 723 771**	**R 9 785 116**
Taxable income						R 1 510 778	R 0	R 3 456 382	R 2 785 327	R 2 723 771	R 9 785 116
Tax						**R 619 419**	**R 0**	**R 1 417 117**	**R 1 141 984**	**R 1 116 746**	**R 4 011 897**
Income after tax	**R -10 282 000**	**R 0**	**R 122 238**	**R 119 536**	**R 5 840 039**	**R 5 091 556**	**R 0**	**R 2 039 265**	**R 1 643 343**	**R 1 607 025**	**R 5 773 218**
Return after tax	**12.93%**										

Bad case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 5 377 444**	**R 5 150 516**		**R 1 096 259**			**R 80 000**
Sales of progeny	**R 0**		**R 239 450**	**R 229 345**	**R 219 667**	**R 210 397**		**R 4 038 424**	**R 4 917 999**	**R 4 710 459**	**R 16 438 940**
Total Sales	**R 0**	**R 0**	**R 239 450**	**R 229 345**	**R 5 597 111**	**R 5 360 913**	**R 0**	**R 5 134 683**	**R 4 917 999**	**R 4 710 459**	**R 16 518 940**
Transport and incurance at 6%	R -582 000										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R 0	R -119 725	R -114 673	R -109 833	R -105 198	R 0	R -2 019 212	R -2 458 999	R -2 355 230	R -8 219 470
Investors cash flows		R 0	R 119 725	R 114 673	R 5 487 278	R 5 255 715	R 0	R 3 115 471	R 2 458 999	R 2 355 230	R 8 299 470
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 119 725**	**R 114 673**	**R 5 487 278**	**R 5 255 715**	**R 0**	**R 3 115 471**	**R 2 458 999**	**R 2 355 230**	**R 8 299 470**
Cumulative cash flow	R -10 282 000		R -10 162 275	R -10 047 602	R -4 560 325	R 695 390		R 3 810 861	R 6 269 860	R 8 625 090	R 16 924 560
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R 0	R 90 529	R 75 399	R 3 137 369	R 2 613 019	R 0	R 1 171 221	R 803 851	R 669 503	R 2 051 502
Net present value (NPV)	R 330 394										
Internal rate of return (IRR)	15.58%										
Payback period	**5 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 119 725**	**R 114 673**	**R 5 487 278**	**R 5 255 715**	**R 0**	**R 3 115 471**	**R 2 458 999**	**R 2 355 230**	**R 8 299 470**
Taxable income						R 695 390	R 0	R 3 115 471	R 2 458 999	R 2 355 230	R 8 299 470
Tax						**R 285 110**	**R 0**	**R 1 277 343**	**R 1 008 190**	**R 965 644**	**R 3 402 783**
Income after tax	**R -10 282 000**	**R 0**	**R 119 725**	**R 114 673**	**R 5 487 278**	**R 4 970 605**	**R 0**	**R 1 838 128**	**R 1 450 810**	**R 1 389 586**	**R 4 896 687**
Return after tax	**11.44%**										

Worst case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 4 970 457**	**R 4 637 437**		**R 961 495**			**R 80 000**
Sales of progeny	**R 0**		**R 233 250**	**R 217 622**	**R 203 042**	**R 189 438**		**R 3 541 979**	**R 4 201 741**	**R 3 920 225**	**R 13 326 874**
Total Sales	**R 0**	**R 0**	**R 233 250**	**R 217 622**	**R 5 173 499**	**R 4 826 875**	**R 0**	**R 4 503 474**	**R 4 201 741**	**R 3 920 225**	**R 13 406 874**
Transport and incurance at 6%	R -582 000										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R 0	R -116 625	R -108 811	R -101 521	R -94 719	R 0	R -1 770 989	R -2 100 871	R -1 960 112	R -6 663 437
Investors cash flows		R 0	R 116 625	R 108 811	R 5 071 978	R 4 732 156	R 0	R 2 732 485	R 2 100 871	R 1 960 112	R 6 743 437
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 116 625**	**R 108 811**	**R 5 071 978**	**R 4 732 156**	**R 0**	**R 2 732 485**	**R 2 100 871**	**R 1 960 112**	**R 6 743 437**
Cumulative cash flow	R -10 282 000		R -10 165 375	R -10 056 564	R -4 984 586	R -252 430		R 2 480 054	R 4 580 925	R 6 541 037	R 13 284 474
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R 0	R 88 185	R 71 545	R 2 899 920	R 2 352 718	R 0	R 1 027 242	R 686 778	R 557 186	R 1 666 874
Net present value (NPV)	R -931 551										
Internal rate of return (IRR)	13.27%										
Payback period	**7 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -10 282 000**	**R 0**	**R 116 625**	**R 108 811**	**R 5 071 978**	**R 4 732 156**	**R 0**	**R 2 732 485**	**R 2 100 871**	**R 1 960 112**	**R 6 743 437**
Taxable income								R 310 007	R 2 100 871	R 1 960 112	R 6 743 437
Tax								**R 127 103**	**R 861 357**	**R 803 646**	**R 2 764 809**
Income after tax	**R -10 282 000**	**R 0**	**R 116 625**	**R 108 811**	**R 5 071 978**	**R 4 732 156**	**R 0**	**R 2 605 382**	**R 1 239 514**	**R 1 156 466**	**R 3 978 628**
Return after tax	**10.42%**										

APPENDIX E:

BUFFALO CASH FLOW MODEL 2

Best case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 6 120 000.00**	**R 6 120 000**		**R 1 360 000**			**R 80 000**
Sales of progeny	**R 0**		**R 250 000**	**R 250 000**	**R 250 000**	**R 250 000**		**R 5 010 000**	**R 6 370 000**	**R 6 370 000**	**R 23 210 000**
Total Sales	**R 0**	**R 0**	**R 250 000**	**R 250 000**	**R 6 370 000**	**R 6 370 000**	**R 0**	**R 6 370 000**	**R 6 370 000**	**R 6 370 000**	**R 23 290 000**
Transport and incurance at 6%	R -582 000										
Variable management cost		R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R 0	R -25 000	R -25 000	R -637 000	R -637 000	R 0	R -637 000	R -637 000	R -637 000	R -2 329 000
Investors cash flows		R -52 500	R 125 000	R 102 500	R 5 588 000	R 5 588 000	R -145 000	R 5 588 000	R 5 588 000	R 5 588 000	R 20 816 000
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 125 000**	**R 102 500**	**R 5 588 000**	**R 5 588 000**	**R -145 000**	**R 5 588 000**	**R 5 588 000**	**R 5 588 000**	**R 20 816 000**
Cumulative cash flow	R -10 282 000		R -10 157 000	R -10 054 500	R -4 466 500	R 1 121 500		R 6 709 500	R 12 297 500	R 17 885 500	R 38 701 500
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R -45 652	R 94 518	R 67 395	R 3 194 957	R 2 778 224	R -62 688	R 2 100 736	R 1 826 727	R 1 588 458	R 5 145 397
Net present value (NPV)	R 6 406 073										
Internal rate of return (IRR)	23.12%										
Payback period	**5 years**										
Discounted payback period	**9 years**										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 125 000**	**R 102 500**	**R 5 588 000**	**R 5 588 000**	**R -145 000**	**R 5 588 000**	**R 5 588 000**	**R 5 588 000**	**R 20 816 000**
Taxable income						R 1 069 000		R 5 443 000	R 5 588 000	R 5 588 000	R 20 816 000
Tax						**R 438 290**		**R 2 231 630**	**R 2 291 080**	**R 2 291 080**	**R 8 534 560**
Income after tax	**R -10 282 000**	**R -52 500**	**R 125 000**	**R 102 500**	**R 5 588 000**	**R 5 149 710**	**R -145 000**	**R 3 356 370**	**R 3 296 920**	**R 3 296 920**	**R 12 281 440**
Return after tax	**17.87%**										

Good case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 5 929 237.11**	**R 5 866 980**		**R 1 290 084**			**R 80 000**
Sales of progeny	**R 0**		**R 247 375**	**R 244 778**	**R 242 207**	**R 239 664**		**R 4 752 441**	**R 5 979 078**	**R 5 916 298**	**R 21 330 524**
Total Sales	**R 0**	**R 0**	**R 247 375**	**R 244 778**	**R 6 171 445**	**R 6 106 644**	**R 0**	**R 6 042 525**	**R 5 979 078**	**R 5 916 298**	**R 21 410 524**
Transport and incurance at 6%	R -582 000										
Variable management cost		R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R 0	R -24 738	R -24 478	R -617 144	R -610 664	R 0	R -604 252	R -597 908	R -591 630	R -2 141 052
Investors cash flows		R -52 500	R 122 638	R 97 800	R 5 409 300	R 5 350 980	R -145 000	R 5 293 272	R 5 236 170	R 5 179 668	R 19 124 472
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 122 638**	**R 97 800**	**R 5 409 300**	**R 5 350 980**	**R -145 000**	**R 5 293 272**	**R 5 236 170**	**R 5 179 668**	**R 19 124 472**
Cumulative cash flow	R -10 282 000		R -10 159 363	R -10 061 563	R -4 652 263	R 698 717		R 5 991 989	R 11 228 160	R 16 407 828	R 35 532 299
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R -45 652	R 92 732	R 64 305	R 3 092 785	R 2 660 383	R -62 688	R 1 989 937	R 1 711 713	R 1 472 385	R 4 727 277
Net present value (NPV)	R 5 421 177										
Internal rate of return (IRR)	22.09%										
Payback period	**5 years**										
Discounted payback period	**9 years**										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 122 638**	**R 97 800**	**R 5 409 300**	**R 5 350 980**	**R -145 000**	**R 5 293 272**	**R 5 236 170**	**R 5 179 668**	**R 19 124 472**
Taxable income						R 646 217		R 5 148 272	R 5 236 170	R 5 179 668	R 19 124 472
Tax						**R 264 949**		**R 2 110 792**	**R 2 146 830**	**R 2 123 664**	**R 7 841 033**
Income after tax	**R -10 282 000**	**R -52 500**	**R 122 638**	**R 97 800**	**R 5 409 300**	**R 5 086 031**	**R -145 000**	**R 3 182 481**	**R 3 089 340**	**R 3 056 004**	**R 11 283 438**
Return after tax	**17.01%**										

Base case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 5 723 145.15**	**R 5 596 664**		**R 1 216 217**			**R 80 000**
Sales of progeny	**R 0**		**R 244 475**	**R 239 072**	**R 233 789**	**R 228 622**		**R 4 480 330**	**R 5 570 653**	**R 5 447 542**	**R 19 410 231**
Total Sales	**R 0**	**R 0**	**R 244 475**	**R 239 072**	**R 5 956 934**	**R 5 825 286**	**R 0**	**R 5 696 547**	**R 5 570 653**	**R 5 447 542**	**R 19 490 231**
Transport and incurance at 6%	R -582 000										
Variable management cost		R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R 0	R -24 448	R -23 907	R -595 693	R -582 529	R 0	R -569 655	R -557 065	R -544 754	R -1 949 023
Investors cash flows		R -52 500	R 120 028	R 92 665	R 5 216 240	R 5 097 757	R -145 000	R 4 981 892	R 4 868 588	R 4 757 787	R 17 396 208
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 120 028**	**R 92 665**	**R 5 216 240**	**R 5 097 757**	**R -145 000**	**R 4 981 892**	**R 4 868 588**	**R 4 757 787**	**R 17 396 208**
Cumulative cash flow	R -10 282 000		R -10 161 973	R -10 069 308	R -4 853 067	R 244 690		R 5 226 582	R 10 095 170	R 14 852 957	R 32 249 165
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R -45 652	R 90 758	R 60 929	R 2 982 402	R 2 534 486	R -62 688	R 1 872 878	R 1 591 550	R 1 352 460	R 4 300 077
Net present value (NPV)	R 4 395 200										
Internal rate of return (IRR)	20.96%										
Payback period	**5 years**										
Discounted payback period	**9 years**										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 120 028**	**R 92 665**	**R 5 216 240**	**R 5 097 757**	**R -145 000**	**R 4 981 892**	**R 4 868 588**	**R 4 757 787**	**R 17 396 208**
Taxable income						R 192 190		R 4 836 892	R 4 868 588	R 4 757 787	R 17 396 208
Tax						**R 78 798**		**R 1 983 126**	**R 1 996 121**	**R 1 950 693**	**R 7 132 445**
Income after tax	**R -10 282 000**	**R -52 500**	**R 120 028**	**R 92 665**	**R 5 216 240**	**R 5 018 959**	**R -145 000**	**R 2 998 766**	**R 2 872 467**	**R 2 807 095**	**R 10 263 763**
Return after tax	**16.06%**										

Bad case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 5 377 444.30**	**R 5 150 516**		**R 1 096 259**			**R 80 000**
Sales of progeny	**R 0**		**R 239 450**	**R 229 345**	**R 219 667**	**R 210 397**		**R 4 038 424**	**R 4 917 999**	**R 4 710 459**	**R 16 438 940**
Total Sales	**R 0**	**R 0**	**R 239 450**	**R 229 345**	**R 5 597 111**	**R 5 360 913**	**R 0**	**R 5 134 683**	**R 4 917 999**	**R 4 710 459**	**R 16 518 940**
Transport and incurance at 6%	R -582 000										
Variable management cost		R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R 0	R -23 945	R -22 935	R -559 711	R -536 091	R 0	R -513 468	R -491 800	R -471 046	R -1 651 894
Investors cash flows		R -52 500	R 115 505	R 83 911	R 4 892 400	R 4 679 822	R -145 000	R 4 476 214	R 4 281 199	R 4 094 413	R 14 722 046
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 115 505**	**R 83 911**	**R 4 892 400**	**R 4 679 822**	**R -145 000**	**R 4 476 214**	**R 4 281 199**	**R 4 094 413**	**R 14 722 046**
Cumulative cash flow	R -10 282 000		R -10 166 495	R -10 082 584	R -5 190 184	R -510 363		R 3 965 852	R 8 247 051	R 12 341 464	R 27 063 510
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R -45 652	R 87 338	R 55 173	R 2 797 246	R 2 326 698	R -62 688	R 1 682 775	R 1 399 532	R 1 163 888	R 3 639 065
Net present value (NPV)	R 2 761 374										
Internal rate of return (IRR)	18.97%										
Payback period	**7 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 115 505**	**R 83 911**	**R 4 892 400**	**R 4 679 822**	**R -145 000**	**R 4 476 214**	**R 4 281 199**	**R 4 094 413**	**R 14 722 046**
Taxable income						R 0		R 3 768 352	R 4 281 199	R 4 094 413	R 14 722 046
Tax						**R 0**		**R 1 545 024**	**R 1 755 292**	**R 1 678 710**	**R 6 036 039**
Income after tax	**R -10 282 000**	**R -52 500**	**R 115 505**	**R 83 911**	**R 4 892 400**	**R 4 679 822**	**R -145 000**	**R 2 931 190**	**R 2 525 907**	**R 2 415 704**	**R 8 686 007**
Return after tax	**14.37%**										

Worst case

	Year										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd					**R 4 970 457.37**	**R 4 637 437**		**R 961 495**			**R 80 000**
Sales of progeny	**R 0**		**R 233 250**	**R 217 622**	**R 203 042**	**R 189 438**		**R 3 541 979**	**R 4 201 741**	**R 3 920 225**	**R 13 326 874**
Total Sales	**R 0**	**R 0**	**R 233 250**	**R 217 622**	**R 5 173 499**	**R 4 826 875**	**R 0**	**R 4 503 474**	**R 4 201 741**	**R 3 920 225**	**R 13 406 874**
Transport and incurance at 6%	R -582 000										
Variable management cost		R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R 0	R -23 325	R -21 762	R -517 350	R -482 687	R 0	R -450 347	R -420 174	R -392 022	R -1 340 687
Investors cash flows		R -52 500	R 109 925	R 73 360	R 4 511 149	R 4 199 187	R -145 000	R 3 908 127	R 3 636 567	R 3 383 202	R 11 921 187
Capital expenditure	R -9 700 000										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 109 925**	**R 73 360**	**R 4 511 149**	**R 4 199 187**	**R -145 000**	**R 3 908 127**	**R 3 636 567**	**R 3 383 202**	**R 11 921 187**
Cumulative cash flow	R -10 282 000		R -10 172 075	R -10 098 715	R -5 587 566	R -1 388 379		R 2 519 748	R 6 156 315	R 9 539 517	R 21 460 703
Required rate or return	15%										
Discounted cash flow	R -10 282 000	R -45 652	R 83 119	R 48 235	R 2 579 264	R 2 087 738	R -62 688	R 1 469 210	R 1 188 800	R 961 717	R 2 946 735
Net present value (NPV)	R 974 479										
Internal rate of return (IRR)	16.51%										
Payback period	**7 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -10 282 000**	**R -52 500**	**R 109 925**	**R 73 360**	**R 4 511 149**	**R 4 199 187**	**R -145 000**	**R 3 908 127**	**R 3 636 567**	**R 3 383 202**	**R 11 921 187**
Taxable income								R 2 322 248	R 3 636 567	R 3 383 202	R 11 921 187
Tax								**R 952 122**	**R 1 490 992**	**R 1 387 113**	**R 4 887 686**
Income after tax	**R -10 282 000**	**R -52 500**	**R 109 925**	**R 73 360**	**R 4 511 149**	**R 4 199 187**	**R -145 000**	**R 2 956 005**	**R 2 145 575**	**R 1 996 089**	**R 7 033 500**
Return after tax	**12.29%**										

APPENDIX F:

SABLE CASH FLOW MODEL 1

Best Case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 6 750 000**	**R 6 750 000**	**R 1 500 000**					**R 50 000**
Sales of progeny	**R 0**	**R 150 000**	**R 150 000**	**R 150 000**	**R 150 000**	**R 5 400 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 25 500 000**
Total Sales	**R 0**	**R 150 000**	**R 150 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 25 550 000**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -75 000	R -75 000	R -75 000	R -75 000	R -2 700 000	R -3 450 000	R -3 450 000	R -3 450 000	R -3 450 000	R -12 750 000
Investors cash flows		R 75 000	R 75 000	R 6 825 000	R 6 825 000	R 4 200 000	R 3 450 000	R 3 450 000	R 3 450 000	R 3 450 000	R 12 800 000
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 75 000**	**R 75 000**	**R 6 825 000**	**R 6 825 000**	**R 4 200 000**	**R 3 450 000**	**R 3 450 000**	**R 3 450 000**	**R 3 450 000**	**R 12 800 000**
Cumulative cash flow	R -12 773 000	R -12 698 000	R -12 623 000	R -5 798 000	R 1 027 000	R 5 227 000	R 8 677 000	R 12 127 000	R 15 577 000	R 19 027 000	R 31 827 000
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 65 217	R 56 711	R 4 487 548	R 3 902 216	R 2 088 142	R 1 491 530	R 1 296 983	R 1 127 811	R 980 705	R 3 163 964
Net present value (NPV)	R 5 887 828										
Internal rate of return (IRR)	23.17%										
Payback period	**4 years**										
Discounted payback period	**7 years**										
Total projected cash flow	**R -12 773 000**	**R 75 000**	**R 75 000**	**R 6 825 000**	**R 6 825 000**	**R 4 200 000**	**R 3 450 000**	**R 3 450 000**	**R 3 450 000**	**R 3 450 000**	**R 12 800 000**
Taxable income					R 1 027 000	R 4 200 000	R 3 450 000	R 3 450 000	R 3 450 000	R 3 450 000	R 12 800 000
Tax					**R 421 070**	**R 1 722 000**	**R 1 414 500**	**R 1 414 500**	**R 1 414 500**	**R 1 414 500**	**R 5 248 000**
Income after tax	**R -12 773 000**	**R 75 000**	**R 75 000**	**R 6 825 000**	**R 6 403 930**	**R 2 478 000**	**R 2 035 500**	**R 2 035 500**	**R 2 035 500**	**R 2 035 500**	**R 7 552 000**
Return after tax	**17.49%**										

Good case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 6 312 292**	**R 6 172 791**	**R 1 341 416**					**R 50 000**
Sales of progeny	**R 0**	**R 146 685**	**R 143 443**	**R 140 273**	**R 137 173**	**R 4 829 098**	**R 6 034 145**	**R 5 900 791**	**R 5 770 383**	**R 5 642 858**	**R 20 393 165**
Total Sales	**R 0**	**R 146 685**	**R 143 443**	**R 6 452 566**	**R 6 309 964**	**R 6 170 514**	**R 6 034 145**	**R 5 900 791**	**R 5 770 383**	**R 5 642 858**	**R 20 443 165**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -73 343	R -71 722	R -70 137	R -68 587	R -2 414 549	R -3 017 073	R -2 950 395	R -2 885 192	R -2 821 429	R -10 196 583
Investors cash flows		R 73 343	R 71 722	R 6 382 429	R 6 241 377	R 3 755 965	R 3 017 073	R 2 950 395	R 2 885 192	R 2 821 429	R 10 246 583
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 73 343**	**R 71 722**	**R 6 382 429**	**R 6 241 377**	**R 3 755 965**	**R 3 017 073**	**R 2 950 395**	**R 2 885 192**	**R 2 821 429**	**R 10 246 583**
Cumulative cash flow	R -12 773 000	R -12 699 658	R -12 627 936	R -6 245 507	R -4 129	R 3 751 835	R 6 768 908	R 9 719 303	R 12 604 495	R 15 425 924	R 25 672 507
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 63 776	R 54 232	R 4 196 551	R 3 568 528	R 1 867 378	R 1 304 364	R 1 109 163	R 943 174	R 802 026	R 2 532 799
Net present value (NPV)	R 3 668 990										
Internal rate of return (IRR)	20.45%										
Payback period	**5 years**										
Discounted payback period	**8 years**										
Total projected cash flow	**R -12 773 000**	**R 73 343**	**R 71 722**	**R 6 382 429**	**R 6 241 377**	**R 3 755 965**	**R 3 017 073**	**R 2 950 395**	**R 2 885 192**	**R 2 821 429**	**R 10 246 583**
Taxable income						R 3 751 835	R 3 017 073	R 2 950 395	R 2 885 192	R 2 821 429	R 10 246 583
Tax						**R 1 538 252**	**R 1 237 000**	**R 1 209 662**	**R 1 182 929**	**R 1 156 786**	**R 4 201 099**
Income after tax	**R -12 773 000**	**R 73 343**	**R 71 722**	**R 6 382 429**	**R 6 241 377**	**R 2 217 713**	**R 1 780 073**	**R 1 740 733**	**R 1 702 263**	**R 1 664 643**	**R 6 045 484**
Return after tax	**15.29%**										

Base case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 5 790 937**	**R 5 502 548**	**R 1 161 894**					**R 50 000**
Sales of progeny	**R 0**	**R 142 530**	**R 135 432**	**R 128 687**	**R 122 279**	**R 4 182 817**	**R 5 078 544**	**R 4 825 633**	**R 4 585 316**	**R 4 356 968**	**R 15 299 965**
Total Sales	**R 0**	**R 142 530**	**R 135 432**	**R 5 919 625**	**R 5 624 827**	**R 5 344 711**	**R 5 078 544**	**R 4 825 633**	**R 4 585 316**	**R 4 356 968**	**R 15 349 965**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -71 265	R -67 716	R -64 344	R -61 139	R -2 091 409	R -2 539 272	R -2 412 816	R -2 292 658	R -2 178 484	R -7 649 983
Investors cash flows		R 71 265	R 67 716	R 5 855 281	R 5 563 688	R 3 253 302	R 2 539 272	R 2 412 816	R 2 292 658	R 2 178 484	R 7 699 983
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 71 265**	**R 67 716**	**R 5 855 281**	**R 5 563 688**	**R 3 253 302**	**R 2 539 272**	**R 2 412 816**	**R 2 292 658**	**R 2 178 484**	**R 7 699 983**
Cumulative cash flow	R -12 773 000	R -12 701 735	R -12 634 019	R -6 778 738	R -1 215 050	R 2 038 252	R 4 577 524	R 6 990 341	R 9 282 999	R 11 461 483	R 19 161 465
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 61 970	R 51 203	R 3 849 942	R 3 181 057	R 1 617 466	R 1 097 797	R 907 067	R 749 474	R 619 261	R 1 903 318
Net present value (NPV)	R 1 265 555										
Internal rate of return (IRR)	17.04%										
Payback period	**5 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -12 773 000**	**R 71 265**	**R 67 716**	**R 5 855 281**	**R 5 563 688**	**R 3 253 302**	**R 2 539 272**	**R 2 412 816**	**R 2 292 658**	**R 2 178 484**	**R 7 699 983**
Taxable income						R 2 038 252	R 2 539 272	R 2 412 816	R 2 292 658	R 2 178 484	R 7 699 983
Tax						**R 835 683**	**R 1 041 102**	**R 989 255**	**R 939 990**	**R 893 178**	**R 3 156 993**
Income after tax	**R -12 773 000**	**R 71 265**	**R 67 716**	**R 5 855 281**	**R 5 563 688**	**R 2 417 619**	**R 1 498 171**	**R 1 423 562**	**R 1 352 668**	**R 1 285 305**	**R 4 542 990**
Return after tax	**12.51%**										

Bad case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 5 312 908**	**R 4 905 408**	**R 1 006 481**					**R 50 000**
Sales of progeny	**R 0**	**R 138 495**	**R 127 872**	**R 118 065**	**R 109 009**	**R 3 623 330**	**R 4 274 705**	**R 3 946 835**	**R 3 644 112**	**R 3 364 609**	**R 11 480 704**
Total Sales	**R 0**	**R 138 495**	**R 127 872**	**R 5 430 972**	**R 5 014 417**	**R 4 629 811**	**R 4 274 705**	**R 3 946 835**	**R 3 644 112**	**R 3 364 609**	**R 11 530 704**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -69 248	R -63 936	R -59 032	R -54 505	R -1 811 665	R -2 137 352	R -1 973 417	R -1 822 056	R -1 682 305	R -5 740 352
Investors cash flows		R 69 248	R 63 936	R 5 371 940	R 4 959 912	R 2 818 146	R 2 137 352	R 1 973 417	R 1 822 056	R 1 682 305	R 5 790 352
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 69 248**	**R 63 936**	**R 5 371 940**	**R 4 959 912**	**R 2 818 146**	**R 2 137 352**	**R 1 973 417**	**R 1 822 056**	**R 1 682 305**	**R 5 790 352**
Cumulative cash flow	R -12 773 000	R -12 703 753	R -12 639 816	R -7 267 876	R -2 307 964	R 510 182	R 2 647 534	R 4 620 952	R 6 443 008	R 8 125 312	R 13 915 665
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 60 215	R 48 345	R 3 532 138	R 2 835 846	R 1 401 117	R 924 036	R 741 881	R 595 633	R 478 216	R 1 431 287
Net present value (NPV)	R -724 287										
Internal rate of return (IRR)	13.74%										
Payback period	**5 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -12 773 000**	**R 69 248**	**R 63 936**	**R 5 371 940**	**R 4 959 912**	**R 2 818 146**	**R 2 137 352**	**R 1 973 417**	**R 1 822 056**	**R 1 682 305**	**R 5 790 352**
Taxable income						R 510 182	R 2 137 352	R 1 973 417	R 1 822 056	R 1 682 305	R 5 790 352
Tax						**R 209 175**	**R 876 314**	**R 809 101**	**R 747 043**	**R 689 745**	**R 2 374 044**
Income after tax	**R -12 773 000**	**R 69 248**	**R 63 936**	**R 5 371 940**	**R 4 959 912**	**R 2 608 971**	**R 1 261 038**	**R 1 164 316**	**R 1 075 013**	**R 992 560**	**R 3 416 308**
Return after tax	**9.89%**										

Worst case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 4 704 213**	**R 4 170 755**	**R 821 731**					**R 50 000**
Sales of progeny	**R 0**	**R 132 990**	**R 117 909**	**R 104 538**	**R 92 683**	**R 2 958 233**	**R 3 351 317**	**R 2 971 277**	**R 2 634 334**	**R 2 335 601**	**R 7 652 749**
Total Sales	**R 0**	**R 132 990**	**R 117 909**	**R 4 808 751**	**R 4 263 438**	**R 3 779 965**	**R 3 351 317**	**R 2 971 277**	**R 2 634 334**	**R 2 335 601**	**R 7 702 749**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -66 495	R -58 954	R -52 269	R -46 342	R -1 479 117	R -1 675 658	R -1 485 639	R -1 317 167	R -1 167 800	R -3 826 374
Investors cash flows		R 66 495	R 58 954	R 4 756 482	R 4 217 097	R 2 300 848	R 1 675 658	R 1 485 639	R 1 317 167	R 1 167 800	R 3 876 374
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 66 495**	**R 58 954**	**R 4 756 482**	**R 4 217 097**	**R 2 300 848**	**R 1 675 658**	**R 1 485 639**	**R 1 317 167**	**R 1 167 800**	**R 3 876 374**
Cumulative cash flow	R -12 773 000	R -12 706 505	R -12 647 551	R -7 891 069	R -3 673 972	R -1 373 124	R 302 534	R 1 788 173	R 3 105 340	R 4 273 141	R 8 149 515
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 57 822	R 44 578	R 3 127 464	R 2 411 139	R 1 143 928	R 724 433	R 558 507	R 430 584	R 331 962	R 958 180
Net present value (NPV)	R -2 984 403										
Internal rate of return (IRR)	9.23%										
Payback period	**6 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -12 773 000**	**R 66 495**	**R 58 954**	**R 4 756 482**	**R 4 217 097**	**R 2 300 848**	**R 1 675 658**	**R 1 485 639**	**R 1 317 167**	**R 1 167 800**	**R 3 876 374**
Taxable income							R 302 534	R 1 485 639	R 1 317 167	R 1 167 800	R 3 876 374
Tax							**R 124 039**	**R 609 112**	**R 540 039**	**R 478 798**	**R 1 589 313**
Income after tax	**R -12 773 000**	**R 66 495**	**R 58 954**	**R 4 756 482**	**R 4 217 097**	**R 2 300 848**	**R 1 551 619**	**R 876 527**	**R 777 129**	**R 689 002**	**R 2 287 061**
Return after tax	**6.40%**										

APPENDIX G:

SABLE CASH FLOW MODEL 2

Best Case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 6 750 000**	**R 6 750 000**	**R 1 500 000**					**R 50 000**
Sales of progeny	**R 0**	**R 150 000**	**R 150 000**	**R 150 000**	**R 150 000**	**R 5 400 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 25 500 000**
Total Sales	**R 0**	**R 150 000**	**R 150 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 6 900 000**	**R 25 550 000**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R -15 000	R -15 000	R -690 000	R -690 000	R -690 000	R -690 000	R -690 000	R -690 000	R -690 000	R -2 555 000
Investors cash flows		R 82 500	R 35 000	R 6 087 500	R 6 065 000	R 6 065 000	R 6 065 000	R 6 065 000	R 6 065 000	R 6 065 000	R 22 850 000
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 82 500**	**R 35 000**	**R 6 087 500**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 22 850 000**
Cumulative cash flow	R -12 773 000	R -12 690 500	R -12 655 500	R -6 568 000	R -503 000	R 5 562 000	R 11 627 000	R 17 692 000	R 23 757 000	R 29 822 000	R 52 672 000
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 71 739	R 26 465	R 4 002 630	R 3 467 683	R 3 015 377	R 2 622 067	R 2 280 058	R 1 982 659	R 1 724 052	R 5 648 171
Net present value (NPV)	R 12 067 901										
Internal rate of return (IRR)	28.23%										
Payback period	**5 years**										
Discounted payback period	**6 years**										
Total projected cash flow	**R -12 773 000**	**R 82 500**	**R 35 000**	**R 6 087 500**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 6 065 000**	**R 22 850 000**
Taxable income						R 5 562 000	R 6 065 000	R 6 065 000	R 6 065 000	R 6 065 000	R 22 850 000
Tax						**R 2 280 420**	**R 2 486 650**	**R 2 486 650**	**R 2 486 650**	**R 2 486 650**	**R 9 368 500**
Income after tax	**R -12 773 000**	**R 82 500**	**R 35 000**	**R 6 087 500**	**R 6 065 000**	**R 3 784 580**	**R 3 578 350**	**R 3 578 350**	**R 3 578 350**	**R 3 578 350**	**R 13 481 500**
Return after tax	**21.92%**										

Good case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 6 312 292**	**R 6 172 791**	**R 1 341 416**					**R 50 000**
Sales of progeny	**R 0**	**R 146 685**	**R 143 443**	**R 140 273**	**R 137 173**	**R 4 829 098**	**R 6 034 145**	**R 5 900 791**	**R 5 770 383**	**R 5 642 858**	**R 20 393 165**
Total Sales	**R 0**	**R 146 685**	**R 143 443**	**R 6 452 566**	**R 6 309 964**	**R 6 170 514**	**R 6 034 145**	**R 5 900 791**	**R 5 770 383**	**R 5 642 858**	**R 20 443 165**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R -14 669	R -14 344	R -645 257	R -630 996	R -617 051	R -603 415	R -590 079	R -577 038	R -564 286	R -2 044 317
Investors cash flows		R 79 517	R 29 099	R 5 684 809	R 5 533 968	R 5 408 462	R 5 285 731	R 5 165 712	R 5 048 345	R 4 933 572	R 18 253 849
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 79 517**	**R 29 099**	**R 5 684 809**	**R 5 533 968**	**R 5 408 462**	**R 5 285 731**	**R 5 165 712**	**R 5 048 345**	**R 4 933 572**	**R 18 253 849**
Cumulative cash flow	R -12 773 000	R -12 693 484	R -12 664 385	R -6 979 576	R -1 445 608	R 3 962 854	R 9 248 585	R 14 414 297	R 19 462 642	R 24 396 214	R 42 650 063
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 69 145	R 22 003	R 3 737 854	R 3 164 064	R 2 688 962	R 2 285 167	R 1 941 982	R 1 650 313	R 1 402 429	R 4 512 072
Net present value (NPV)	R 8 700 991										
Internal rate of return (IRR)	25.33%										
Payback period	**5 years**										
Discounted payback period	**7 years**										
Total projected cash flow	**R -12 773 000**	**R 79 517**	**R 29 099**	**R 5 684 809**	**R 5 533 968**	**R 5 408 462**	**R 5 285 731**	**R 5 165 712**	**R 5 048 345**	**R 4 933 572**	**R 18 253 849**
Taxable income						R 3 962 854	R 5 285 731	R 5 165 712	R 5 048 345	R 4 933 572	R 18 253 849
Tax						**R 1 624 770**	**R 2 167 150**	**R 2 117 942**	**R 2 069 821**	**R 2 022 765**	**R 7 484 078**
Income after tax	**R -12 773 000**	**R 79 517**	**R 29 099**	**R 5 684 809**	**R 5 533 968**	**R 3 783 692**	**R 3 118 581**	**R 3 047 770**	**R 2 978 524**	**R 2 910 807**	**R 10 769 771**
Return after tax	**19.46%**										

Base case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 5 790 937**	**R 5 502 548**	**R 1 161 894**					**R 50 000**
Sales of progeny	**R 0**	**R 142 530**	**R 135 432**	**R 128 687**	**R 122 279**	**R 4 182 817**	**R 5 078 544**	**R 4 825 633**	**R 4 585 316**	**R 4 356 968**	**R 15 299 965**
Total Sales	**R 0**	**R 142 530**	**R 135 432**	**R 5 919 625**	**R 5 624 827**	**R 5 344 711**	**R 5 078 544**	**R 4 825 633**	**R 4 585 316**	**R 4 356 968**	**R 15 349 965**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R -14 253	R -13 543	R -591 962	R -562 483	R -534 471	R -507 854	R -482 563	R -458 532	R -435 697	R -1 534 997
Investors cash flows		R 75 777	R 21 889	R 5 205 162	R 4 917 345	R 4 665 240	R 4 425 690	R 4 198 070	R 3 981 785	R 3 776 271	R 13 669 969
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 75 777**	**R 21 889**	**R 5 205 162**	**R 4 917 345**	**R 4 665 240**	**R 4 425 690**	**R 4 198 070**	**R 3 981 785**	**R 3 776 271**	**R 13 669 969**
Cumulative cash flow	R -12 773 000	R -12 697 223	R -12 675 334	R -7 470 172	R -2 552 827	R 2 112 412	R 6 538 102	R 10 736 172	R 14 717 957	R 18 494 227	R 32 164 196
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 65 893	R 16 551	R 3 422 479	R 2 811 508	R 2 319 449	R 1 913 348	R 1 578 210	R 1 301 652	R 1 073 452	R 3 379 007
Net present value (NPV)	R 5 108 548										
Internal rate of return (IRR)	21.69%										
Payback period	**5 years**										
Discounted payback period	**8 years**										
Total projected cash flow	**R -12 773 000**	**R 75 777**	**R 21 889**	**R 5 205 162**	**R 4 917 345**	**R 4 665 240**	**R 4 425 690**	**R 4 198 070**	**R 3 981 785**	**R 3 776 271**	**R 13 669 969**
Taxable income						R 2 112 412	R 4 425 690	R 4 198 070	R 3 981 785	R 3 776 271	R 13 669 969
Tax						**R 866 089**	**R 1 814 533**	**R 1 721 209**	**R 1 632 532**	**R 1 548 271**	**R 5 604 687**
Income after tax	**R -12 773 000**	**R 75 777**	**R 21 889**	**R 5 205 162**	**R 4 917 345**	**R 3 799 151**	**R 2 611 157**	**R 2 476 861**	**R 2 349 253**	**R 2 228 000**	**R 8 065 281**
Return after tax	**16.40%**										

Bad case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 5 312 908**	**R 4 905 408**	**R 1 006 481**					**R 50 000**
Sales of progeny	**R 0**	**R 138 495**	**R 127 872**	**R 118 065**	**R 109 009**	**R 3 623 330**	**R 4 274 705**	**R 3 946 835**	**R 3 644 112**	**R 3 364 609**	**R 11 480 704**
Total Sales	**R 0**	**R 138 495**	**R 127 872**	**R 5 430 972**	**R 5 014 417**	**R 4 629 811**	**R 4 274 705**	**R 3 946 835**	**R 3 644 112**	**R 3 364 609**	**R 11 530 704**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R -13 850	R -12 787	R -543 097	R -501 442	R -462 981	R -427 470	R -394 683	R -364 411	R -336 461	R -1 153 070
Investors cash flows		R 72 146	R 15 085	R 4 765 375	R 4 367 975	R 4 021 830	R 3 702 234	R 3 407 151	R 3 134 701	R 2 883 148	R 10 232 634
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 72 146**	**R 15 085**	**R 4 765 375**	**R 4 367 975**	**R 4 021 830**	**R 3 702 234**	**R 3 407 151**	**R 3 134 701**	**R 2 883 148**	**R 10 232 634**
Cumulative cash flow	R -12 773 000	R -12 700 855	R -12 685 769	R -7 920 394	R -3 552 419	R 469 411	R 4 171 645	R 7 578 796	R 10 713 498	R 13 596 646	R 23 829 280
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 62 735	R 11 407	R 3 133 312	R 2 497 404	R 1 999 560	R 1 600 578	R 1 280 874	R 1 024 739	R 819 571	R 2 529 351
Net present value (NPV)	R 2 186 531										
Internal rate of return (IRR)	18.14%										
Payback period	**5 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -12 773 000**	**R 72 146**	**R 15 085**	**R 4 765 375**	**R 4 367 975**	**R 4 021 830**	**R 3 702 234**	**R 3 407 151**	**R 3 134 701**	**R 2 883 148**	**R 10 232 634**
Taxable income						R 469 411	R 3 702 234	R 3 407 151	R 3 134 701	R 2 883 148	R 10 232 634
Tax						**R 192 459**	**R 1 517 916**	**R 1 396 932**	**R 1 285 228**	**R 1 182 091**	**R 4 195 380**
Income after tax	**R -12 773 000**	**R 72 146**	**R 15 085**	**R 4 765 375**	**R 4 367 975**	**R 3 829 371**	**R 2 184 318**	**R 2 010 219**	**R 1 849 474**	**R 1 701 057**	**R 6 037 254**
Return after tax	**13.49%**										

Worst case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd				**R 4 704 213**	**R 4 170 755**	**R 821 731**					**R 50 000**
Sales of progeny	**R 0**	**R 132 990**	**R 117 909**	**R 104 538**	**R 92 683**	**R 2 958 233**	**R 3 351 317**	**R 2 971 277**	**R 2 634 334**	**R 2 335 601**	**R 7 652 749**
Total Sales	**R 0**	**R 132 990**	**R 117 909**	**R 4 808 751**	**R 4 263 438**	**R 3 779 965**	**R 3 351 317**	**R 2 971 277**	**R 2 634 334**	**R 2 335 601**	**R 7 702 749**
Transport and incurance at 6%	R -723 000										
Variable management cost	R 0	R -52 500	R -100 000	R -122 500	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000	R -145 000
Progeny split cost	R 0	R -13 299	R -11 791	R -480 875	R -426 344	R -377 996	R -335 132	R -297 128	R -263 433	R -233 560	R -770 275
Investors cash flows		R 67 191	R 6 118	R 4 205 376	R 3 692 095	R 3 256 968	R 2 871 185	R 2 529 150	R 2 225 901	R 1 957 041	R 6 787 474
Capital expenditure	R -12 050 000										
Total projected cash flow	**R -12 773 000**	**R 67 191**	**R 6 118**	**R 4 205 376**	**R 3 692 095**	**R 3 256 968**	**R 2 871 185**	**R 2 529 150**	**R 2 225 901**	**R 1 957 041**	**R 6 787 474**
Cumulative cash flow	R -12 773 000	R -12 705 809	R -12 699 691	R -8 494 315	R -4 802 221	R -1 545 253	R 1 325 932	R 3 855 082	R 6 080 983	R 8 038 024	R 14 825 497
Required rate or return	15%										
Discounted cash flow	R -12 773 000	R 58 427	R 4 626	R 2 765 103	R 2 110 967	R 1 619 289	R 1 241 292	R 950 801	R 727 651	R 556 313	R 1 677 760
Net present value (NPV)	R -1 060 771										
Internal rate of return (IRR)	13.27%										
Payback period	**6 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -12 773 000**	**R 67 191**	**R 6 118**	**R 4 205 376**	**R 3 692 095**	**R 3 256 968**	**R 2 871 185**	**R 2 529 150**	**R 2 225 901**	**R 1 957 041**	**R 6 787 474**
Taxable income							R 1 325 932	R 2 529 150	R 2 225 901	R 1 957 041	R 6 787 474
Tax							**R 543 632**	**R 1 036 951**	**R 912 619**	**R 802 387**	**R 2 782 864**
Income after tax	**R -12 773 000**	**R 67 191**	**R 6 118**	**R 4 205 376**	**R 3 692 095**	**R 3 256 968**	**R 2 327 553**	**R 1 492 198**	**R 1 313 282**	**R 1 154 654**	**R 4 004 610**
Return after tax	**9.56%**										

APPENDIX H

GOLDEN WILDEBEEST CASH FLOW MODEL 1

Best Case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 250 000**	**R 250 000**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 50 000**	**R 50 000**	**R 260 000**	**R 255 000**	**R 1 050 000**	**R 990 000**	**R 1 425 000**	**R 1 705 000**	**R 2 400 000**	**R 6 320 000**
Total Sales	**R 0**	**R 50 000**	**R 50 000**	**R 510 000**	**R 505 000**	**R 1 050 000**	**R 990 000**	**R 1 425 000**	**R 1 705 000**	**R 2 400 000**	**R 6 360 000**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -25 000	R -25 000	R -130 000	R -127 500	R -525 000	R -495 000	R -712 500	R -852 500	R -1 200 000	R -3 160 000
Investors cash flows		R 25 000	R 25 000	R 380 000	R 377 500	R 525 000	R 495 000	R 712 500	R 852 500	R 1 200 000	R 3 200 000
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R 25 000**	**R 25 000**	**R 380 000**	**R 377 500**	**R 525 000**	**R 495 000**	**R 712 500**	**R 852 500**	**R 1 200 000**	**R 3 200 000**
Cumulative cash flow	R -1 590 000	R -1 565 000	R -1 540 000	R -1 160 000	R -782 500	R -257 500	R 237 500	R 950 000	R 1 802 500	R 3 002 500	R 6 202 500
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R 21 739	R 18 904	R 249 856	R 215 837	R 261 018	R 214 002	R 267 855	R 278 684	R 341 115	R 790 991
Net present value (NPV)	R 1 070 001										
Internal rate of return (IRR)	23.73%										
Payback period	**6 years**										
Discounted payback period	**9 years**										
Total projected cash flow	**R -1 590 000**	**R 25 000**	**R 25 000**	**R 380 000**	**R 377 500**	**R 525 000**	**R 495 000**	**R 712 500**	**R 852 500**	**R 1 200 000**	**R 3 200 000**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 237 500**	**R 712 500**	**R 852 500**	**R 1 200 000**	**R 3 200 000**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 97 375**	**R 292 125**	**R 349 525**	**R 492 000**	**R 1 312 000**
Income after tax	**R -1 590 000**	**R 25 000**	**R 25 000**	**R 380 000**	**R 377 500**	**R 525 000**	**R 397 625**	**R 420 375**	**R 502 975**	**R 708 000**	**R 1 888 000**
Return after tax	**18.43%**										

Good case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 224 658**	**R 216 795**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 48 250**	**R 46 561**	**R 233 644**	**R 221 131**	**R 878 670**	**R 799 464**	**R 1 110 468**	**R 1 282 162**	**R 1 741 635**	**R 4 425 784**
Total Sales	**R 0**	**R 48 250**	**R 46 561**	**R 458 302**	**R 437 926**	**R 878 670**	**R 799 464**	**R 1 110 468**	**R 1 282 162**	**R 1 741 635**	**R 4 465 784**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -24 125	R -23 281	R -116 822	R -110 565	R -439 335	R -399 732	R -555 234	R -641 081	R -870 817	R -2 212 892
Investors cash flows		R 24 125	R 23 281	R 341 480	R 327 360	R 439 335	R 399 732	R 555 234	R 641 081	R 870 817	R 2 252 892
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R 24 125**	**R 23 281**	**R 341 480**	**R 327 360**	**R 439 335**	**R 399 732**	**R 555 234**	**R 641 081**	**R 870 817**	**R 2 252 892**
Cumulative cash flow	R -1 590 000	R -1 565 875	R -1 542 594	R -1 201 114	R -873 754	R -434 419	R -34 686	R 520 548	R 1 161 628	R 2 032 446	R 4 285 338
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R 20 978	R 17 603	R 224 529	R 187 169	R 218 427	R 172 815	R 208 733	R 209 571	R 247 541	R 556 880
Net present value (NPV)	R 474 247										
Internal rate of return (IRR)	19.42%										
Payback period	**7 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -1 590 000**	**R 24 125**	**R 23 281**	**R 341 480**	**R 327 360**	**R 439 335**	**R 399 732**	**R 555 234**	**R 641 081**	**R 870 817**	**R 2 252 892**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 520 548**	**R 641 081**	**R 870 817**	**R 2 252 892**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 213 425**	**R 262 843**	**R 357 035**	**R 923 686**
Income after tax	**R -1 590 000**	**R 24 125**	**R 23 281**	**R 341 480**	**R 327 360**	**R 439 335**	**R 399 732**	**R 341 809**	**R 378 238**	**R 513 782**	**R 1 329 206**
Return after tax	**14.75%**										

Base case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 189 887**	**R 173 253**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 45 620**	**R 41 624**	**R 197 483**	**R 176 718**	**R 663 920**	**R 571 146**	**R 750 087**	**R 818 854**	**R 1 051 668**	**R 2 526 794**
Total Sales	**R 0**	**R 45 620**	**R 41 624**	**R 387 370**	**R 349 971**	**R 663 920**	**R 571 146**	**R 750 087**	**R 818 854**	**R 1 051 668**	**R 2 566 794**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -22 810	R -20 812	R -98 741	R -88 359	R -331 960	R -285 573	R -375 044	R -409 427	R -525 834	R -1 263 397
Investors cash flows		R 22 810	R 20 812	R 288 629	R 261 612	R 331 960	R 285 573	R 375 044	R 409 427	R 525 834	R 1 303 397
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R 22 810**	**R 20 812**	**R 288 629**	**R 261 612**	**R 331 960**	**R 285 573**	**R 375 044**	**R 409 427**	**R 525 834**	**R 1 303 397**
Cumulative cash flow	R -1 590 000	R -1 567 190	R -1 546 378	R -1 257 750	R -996 137	R -664 177	R -378 605	R -3 561	R 405 866	R 931 700	R 2 235 097
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R 19 835	R 15 737	R 189 778	R 149 578	R 165 043	R 123 461	R 140 993	R 133 842	R 149 475	R 322 180
Net present value (NPV)	R -180 079										
Internal rate of return (IRR)	12.97%										
Payback period	**8 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -1 590 000**	**R 22 810**	**R 20 812**	**R 288 629**	**R 261 612**	**R 331 960**	**R 285 573**	**R 375 044**	**R 409 427**	**R 525 834**	**R 1 303 397**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 97 578**	**R 409 427**	**R 525 834**	**R 1 303 397**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 007**	**R 167 865**	**R 215 592**	**R 534 393**
Income after tax	**R -1 590 000**	**R 22 810**	**R 20 812**	**R 288 629**	**R 261 612**	**R 331 960**	**R 285 573**	**R 335 037**	**R 241 562**	**R 310 242**	**R 769 004**
Return after tax	**9.16%**										

Bad case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 164 967**	**R 143 620**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 43 530**	**R 37 897**	**R 171 565**	**R 146 492**	**R 525 149**	**R 431 069**	**R 540 189**	**R 562 696**	**R 689 571**	**R 1 580 897**
Total Sales	**R 0**	**R 43 530**	**R 37 897**	**R 336 532**	**R 290 112**	**R 525 149**	**R 431 069**	**R 540 189**	**R 562 696**	**R 689 571**	**R 1 620 897**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -21 765	R -18 949	R -85 783	R -73 246	R -262 575	R -215 535	R -270 094	R -281 348	R -344 786	R -790 449
Investors cash flows		R 21 765	R 18 949	R 250 749	R 216 866	R 262 575	R 215 535	R 270 094	R 281 348	R 344 786	R 830 449
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R 21 765**	**R 18 949**	**R 250 749**	**R 216 866**	**R 262 575**	**R 215 535**	**R 270 094**	**R 281 348**	**R 344 786**	**R 830 449**
Cumulative cash flow	R -1 590 000	R -1 568 235	R -1 549 286	R -1 298 537	R -1 081 671	R -819 097	R -603 562	R -333 468	R -52 120	R 292 666	R 1 123 115
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R 18 926	R 14 328	R 164 872	R 123 994	R 130 546	R 93 182	R 101 538	R 91 973	R 98 010	R 205 274
Net present value (NPV)	R -547 357										
Internal rate of return (IRR)	7.86%										
Payback period	**9 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -1 590 000**	**R 21 765**	**R 18 949**	**R 250 749**	**R 216 866**	**R 262 575**	**R 215 535**	**R 270 094**	**R 281 348**	**R 344 786**	**R 830 449**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 292 666**	**R 830 449**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 119 993**	**R 340 484**
Income after tax	**R -1 590 000**	**R 21 765**	**R 18 949**	**R 250 749**	**R 216 866**	**R 262 575**	**R 215 535**	**R 270 094**	**R 281 348**	**R 224 793**	**R 489 965**
Return after tax	**5.38%**										

Worst case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 62 810**	**R 39 633**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 31 550**	**R 31 550**	**R 88 108**	**R 66 411**	**R 131 584**	**R 125 582**	**R 166 442**	**R 194 451**	**R 261 320**	**R 653 452**
Total Sales	**R 0**	**R 31 550**	**R 31 550**	**R 150 918**	**R 106 044**	**R 131 584**	**R 125 582**	**R 166 442**	**R 194 451**	**R 261 320**	**R 693 452**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -15 775	R -15 775	R -44 054	R -33 206	R -65 792	R -62 791	R -83 221	R -97 226	R -130 660	R -326 726
Investors cash flows		R 15 775	R 15 775	R 106 864	R 72 839	R 65 792	R 62 791	R 83 221	R 97 226	R 130 660	R 366 726
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R 15 775**	**R 15 775**	**R 106 864**	**R 72 839**	**R 65 792**	**R 62 791**	**R 83 221**	**R 97 226**	**R 130 660**	**R 366 726**
Cumulative cash flow	R -1 590 000	R -1 574 225	R -1 558 450	R -1 451 586	R -1 378 747	R -1 312 955	R -1 250 165	R -1 166 944	R -1 069 718	R -939 058	R -572 332
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R 13 717	R 11 928	R 70 265	R 41 646	R 32 710	R 27 146	R 31 286	R 31 783	R 37 142	R 90 649
Net present value (NPV)	R -1 201 728										
Internal rate of return (IRR)	-5.67%										
Payback period	**>10 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -1 590 000**	**R 15 775**	**R 15 775**	**R 106 864**	**R 72 839**	**R 65 792**	**R 62 791**	**R 83 221**	**R 97 226**	**R 130 660**	**R 366 726**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**
Income after tax	**R -1 590 000**	**R 15 775**	**R 15 775**	**R 106 864**	**R 72 839**	**R 65 792**	**R 62 791**	**R 83 221**	**R 97 226**	**R 130 660**	**R 366 726**
Return after tax	**-5.67%**										

APPENDIX I:

GOLDEN WILDEBEEST CASH FLOW MODEL 2

Best Case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 250 000**	**R 250 000**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 50 000**	**R 50 000**	**R 260 000**	**R 255 000**	**R 1 050 000**	**R 990 000**	**R 1 425 000**	**R 1 705 000**	**R 2 400 000**	**R 6 320 000**
Total Sales	**R 0**	**R 50 000**	**R 50 000**	**R 510 000**	**R 505 000**	**R 1 050 000**	**R 990 000**	**R 1 425 000**	**R 1 705 000**	**R 2 400 000**	**R 6 360 000**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -155 000	R -150 000	R -150 000	R -147 500	R -145 000	R -147 500	R -147 500
Progeny split cost	R 0	R -5 000	R -5 000	R -26 000	R -25 500	R -105 000	R -99 000	R -142 500	R -170 500	R -240 000	R -632 000
Investors cash flows		R -7 500	R -55 000	R 361 500	R 324 500	R 795 000	R 741 000	R 1 135 000	R 1 389 500	R 2 012 500	R 5 580 500
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R -7 500**	**R -55 000**	**R 361 500**	**R 324 500**	**R 795 000**	**R 741 000**	**R 1 135 000**	**R 1 389 500**	**R 2 012 500**	**R 5 580 500**
Cumulative cash flow	R -1 590 000	R -1 597 500	R -1 652 500	R -1 291 000	R -966 500	R -171 500	R 569 500	R 1 704 500	R 3 094 000	R 5 106 500	R 10 687 000
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R -6 522	R -41 588	R 237 692	R 185 534	R 395 256	R 320 355	R 426 689	R 454 230	R 572 078	R 1 379 414
Net present value (NPV)	R 2 333 138										
Internal rate of return (IRR)	29.58%										
Payback period	**6 years**										
Discounted payback period	**8 years**										
Total projected cash flow	**R -1 590 000**	**R -7 500**	**R -55 000**	**R 361 500**	**R 324 500**	**R 795 000**	**R 741 000**	**R 1 135 000**	**R 1 389 500**	**R 2 012 500**	**R 5 580 500**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 569 500**	**R 1 135 000**	**R 1 389 500**	**R 2 012 500**	**R 5 580 500**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 233 495**	**R 465 350**	**R 569 695**	**R 825 125**	**R 2 288 005**
Income after tax	**R -1 590 000**	**R -7 500**	**R -55 000**	**R 361 500**	**R 324 500**	**R 795 000**	**R 507 505**	**R 669 650**	**R 819 805**	**R 1 187 375**	**R 3 292 495**
Return after tax	**23.50%**										

Good case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 224 658**	**R 216 795**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 48 250**	**R 46 561**	**R 233 644**	**R 221 131**	**R 878 670**	**R 799 464**	**R 1 110 468**	**R 1 282 162**	**R 1 741 635**	**R 4 425 784**
Total Sales	**R 0**	**R 48 250**	**R 46 561**	**R 458 302**	**R 437 926**	**R 878 670**	**R 799 464**	**R 1 110 468**	**R 1 282 162**	**R 1 741 635**	**R 4 465 784**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -155 000	R -150 000	R -150 000	R -147 500	R -145 000	R -147 500	R -147 500
Progeny split cost	R 0	R -4 825	R -4 656	R -23 364	R -22 113	R -87 867	R -79 946	R -111 047	R -128 216	R -174 163	R -442 578
Investors cash flows		R -9 075	R -58 095	R 312 438	R 260 813	R 640 803	R 569 518	R 851 921	R 1 008 946	R 1 419 971	R 3 875 706
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R -9 075**	**R -58 095**	**R 312 438**	**R 260 813**	**R 640 803**	**R 569 518**	**R 851 921**	**R 1 008 946**	**R 1 419 971**	**R 3 875 706**
Cumulative cash flow	R -1 590 000	R -1 599 075	R -1 657 170	R -1 344 732	R -1 083 919	R -443 116	R 126 402	R 978 323	R 1 987 269	R 3 407 240	R 7 282 946
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R -7 891	R -43 928	R 205 433	R 149 121	R 318 592	R 246 218	R 320 269	R 329 826	R 403 644	R 958 015
Net present value (NPV)	R 1 289 299										
Internal rate of return (IRR)	24.42%										
Payback period	**6 years**										
Discounted payback period	**9 years**										
Total projected cash flow	**R -1 590 000**	**R -9 075**	**R -58 095**	**R 312 438**	**R 260 813**	**R 640 803**	**R 569 518**	**R 851 921**	**R 1 008 946**	**R 1 419 971**	**R 3 875 706**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 126 402**	**R 851 921**	**R 1 008 946**	**R 1 419 971**	**R 3 875 706**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 51 825**	**R 349 288**	**R 413 668**	**R 582 188**	**R 1 589 039**
Income after tax	**R -1 590 000**	**R -9 075**	**R -58 095**	**R 312 438**	**R 260 813**	**R 640 803**	**R 517 693**	**R 502 634**	**R 595 278**	**R 837 783**	**R 2 286 666**
Return after tax	**19.01%**										

Base case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 189 887**	**R 173 253**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 45 620**	**R 41 624**	**R 197 483**	**R 176 718**	**R 663 920**	**R 571 146**	**R 750 087**	**R 818 854**	**R 1 051 668**	**R 2 526 794**
Total Sales	**R 0**	**R 45 620**	**R 41 624**	**R 387 370**	**R 349 971**	**R 663 920**	**R 571 146**	**R 750 087**	**R 818 854**	**R 1 051 668**	**R 2 566 794**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -155 000	R -150 000	R -150 000	R -147 500	R -145 000	R -147 500	R -147 500
Progeny split cost	R 0	R -4 562	R -4 162	R -19 748	R -17 672	R -66 392	R -57 115	R -75 009	R -81 885	R -105 167	R -252 679
Investors cash flows		R -11 442	R -62 539	R 245 122	R 177 300	R 447 528	R 364 031	R 527 579	R 591 969	R 799 001	R 2 166 615
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R -11 442**	**R -62 539**	**R 245 122**	**R 177 300**	**R 447 528**	**R 364 031**	**R 527 579**	**R 591 969**	**R 799 001**	**R 2 166 615**
Cumulative cash flow	R -1 590 000	R -1 601 442	R -1 663 981	R -1 418 859	R -1 241 559	R -794 032	R -430 000	R 97 578	R 689 547	R 1 488 548	R 3 655 163
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R -9 950	R -47 288	R 161 172	R 101 372	R 222 500	R 157 381	R 198 336	R 193 516	R 227 126	R 535 554
Net present value (NPV)	R 149 718										
Internal rate of return (IRR)	16.38%										
Payback period	**7 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -1 590 000**	**R -11 442**	**R -62 539**	**R 245 122**	**R 177 300**	**R 447 528**	**R 364 031**	**R 527 579**	**R 591 969**	**R 799 001**	**R 2 166 615**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 97 578**	**R 591 969**	**R 799 001**	**R 2 166 615**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 007**	**R 242 707**	**R 327 591**	**R 888 312**
Income after tax	**R -1 590 000**	**R -11 442**	**R -62 539**	**R 245 122**	**R 177 300**	**R 447 528**	**R 364 031**	**R 487 572**	**R 349 262**	**R 471 411**	**R 1 278 303**
Return after tax	**12.18%**										

Bad case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 164 967**	**R 143 620**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 43 530**	**R 37 897**	**R 171 565**	**R 146 492**	**R 525 149**	**R 431 069**	**R 540 189**	**R 562 696**	**R 689 571**	**R 1 580 897**
Total Sales	**R 0**	**R 43 530**	**R 37 897**	**R 336 532**	**R 290 112**	**R 525 149**	**R 431 069**	**R 540 189**	**R 562 696**	**R 689 571**	**R 1 620 897**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -155 000	R -150 000	R -150 000	R -147 500	R -145 000	R -147 500	R -147 500
Progeny split cost	R 0	R -4 353	R -3 790	R -17 157	R -14 649	R -52 515	R -43 107	R -54 019	R -56 270	R -68 957	R -158 090
Investors cash flows		R -13 323	R -65 893	R 196 875	R 120 463	R 322 634	R 237 962	R 338 670	R 361 426	R 473 114	R 1 315 308
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R -13 323**	**R -65 893**	**R 196 875**	**R 120 463**	**R 322 634**	**R 237 962**	**R 338 670**	**R 361 426**	**R 473 114**	**R 1 315 308**
Cumulative cash flow	R -1 590 000	R -1 603 323	R -1 669 216	R -1 472 340	R -1 351 877	R -1 029 243	R -791 281	R -452 611	R -91 185	R 381 930	R 1 697 237
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R -11 585	R -49 824	R 129 449	R 68 875	R 160 406	R 102 878	R 127 319	R 118 151	R 134 489	R 325 124
Net present value (NPV)	R -484 720										
Internal rate of return (IRR)	9.62%										
Payback period	**9 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -1 590 000**	**R -13 323**	**R -65 893**	**R 196 875**	**R 120 463**	**R 322 634**	**R 237 962**	**R 338 670**	**R 361 426**	**R 473 114**	**R 1 315 308**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 381 930**	**R 1 315 308**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 156 591**	**R 539 276**
Income after tax	**R -1 590 000**	**R -13 323**	**R -65 893**	**R 196 875**	**R 120 463**	**R 322 634**	**R 237 962**	**R 338 670**	**R 361 426**	**R 316 523**	**R 776 032**
Return after tax	**6.72%**										

Worst case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 62 810**	**R 39 633**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 40 000**
Sales of progeny	**R 0**	**R 31 550**	**R 31 550**	**R 88 108**	**R 66 411**	**R 131 584**	**R 125 582**	**R 166 442**	**R 194 451**	**R 261 320**	**R 653 452**
Total Sales	**R 0**	**R 31 550**	**R 31 550**	**R 150 918**	**R 106 044**	**R 131 584**	**R 125 582**	**R 166 442**	**R 194 451**	**R 261 320**	**R 693 452**
Transport and incurance at 6%	**R -90 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -155 000	R -150 000	R -150 000	R -147 500	R -145 000	R -147 500	R -147 500
Progeny split cost	R 0	R -3 155	R -3 155	R -15 092	R -10 604	R -13 158	R -12 558	R -16 644	R -19 445	R -26 132	R -69 345
Investors cash flows		R -24 105	R -71 605	R 13 326	R -59 560	R -31 575	R -36 976	R 2 297	R 30 006	R 87 688	R 476 607
Capital expenditure	R -1 500 000										
Total projected cash flow	**R -1 590 000**	**R -24 105**	**R -71 605**	**R 13 326**	**R -59 560**	**R -31 575**	**R -36 976**	**R 2 297**	**R 30 006**	**R 87 688**	**R 476 607**
Cumulative cash flow	R -1 590 000	R -1 614 105	R -1 685 710	R -1 672 384	R -1 731 944	R -1 763 519	R -1 800 495	R -1 798 197	R -1 768 191	R -1 680 504	R -1 203 897
Required rate or return	15%										
Discounted cash flow	R -1 590 000	R -20 961	R -54 144	R 8 762	R -34 054	R -15 698	R -15 986	R 864	R 9 809	R 24 926	R 117 810
Net present value (NPV)	R -1 568 671										
Internal rate of return (IRR)	-11.28%										
Payback period	**>10 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -1 590 000**	**R -24 105**	**R -71 605**	**R 13 326**	**R -59 560**	**R -31 575**	**R -36 976**	**R 2 297**	**R 30 006**	**R 87 688**	**R 476 607**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**
Income after tax	**R -1 590 000**	**R -24 105**	**R -71 605**	**R 13 326**	**R -59 560**	**R -31 575**	**R -36 976**	**R 2 297**	**R 30 006**	**R 87 688**	**R 476 607**
Return after tax	**-11.28%**										

APPENDIX J:

BLACK IMPALA CASH FLOW MODEL 1

Best Case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 150 000**	**R 150 000**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 50 000**	**R 50 000**	**R 210 000**	**R 455 000**	**R 1 095 000**	**R 1 625 000**	**R 1 775 000**	**R 2 090 000**	**R 3 045 000**	**R 6 800 000**
Total Sales	**R 0**	**R 50 000**	**R 50 000**	**R 360 000**	**R 605 000**	**R 1 095 000**	**R 1 625 000**	**R 1 775 000**	**R 2 090 000**	**R 3 045 000**	**R 6 830 000**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -25 000	R -25 000	R -105 000	R -227 500	R -547 500	R -812 500	R -887 500	R -1 045 000	R -1 522 500	R -3 400 000
Investors cash flows		R 25 000	R 25 000	R 255 000	R 377 500	R 547 500	R 812 500	R 887 500	R 1 045 000	R 1 522 500	R 3 430 000
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R 25 000**	**R 25 000**	**R 255 000**	**R 377 500**	**R 547 500**	**R 812 500**	**R 887 500**	**R 1 045 000**	**R 1 522 500**	**R 3 430 000**
Cumulative cash flow	R -1 007 000	R -982 000	R -957 000	R -702 000	R -324 500	R 223 000	R 1 035 500	R 1 923 000	R 2 968 000	R 4 490 500	R 7 920 500
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R 21 739	R 18 904	R 167 667	R 215 837	R 272 204	R 351 266	R 333 644	R 341 612	R 432 790	R 847 844
Net present value (NPV)	R 1 996 506										
Internal rate of return (IRR)	34.48%										
Payback period	**5 years**										
Discounted payback period	**6 years**										
Total projected cash flow	**R -1 007 000**	**R 25 000**	**R 25 000**	**R 255 000**	**R 377 500**	**R 547 500**	**R 812 500**	**R 887 500**	**R 1 045 000**	**R 1 522 500**	**R 3 430 000**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 223 000**	**R 812 500**	**R 887 500**	**R 1 045 000**	**R 1 522 500**	**R 3 430 000**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 91 430**	**R 333 125**	**R 363 875**	**R 428 450**	**R 624 225**	**R 1 406 300**
Income after tax	**R -1 007 000**	**R 25 000**	**R 25 000**	**R 255 000**	**R 377 500**	**R 456 070**	**R 479 375**	**R 523 625**	**R 616 550**	**R 898 275**	**R 2 023 700**
Return after tax	**27.58%**										

Good case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 134 795**	**R 130 077**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 48 250**	**R 46 561**	**R 188 713**	**R 394 567**	**R 916 327**	**R 1 312 252**	**R 1 383 215**	**R 1 571 682**	**R 2 209 699**	**R 4 761 919**
Total Sales	**R 0**	**R 48 250**	**R 46 561**	**R 323 508**	**R 524 644**	**R 916 327**	**R 1 312 252**	**R 1 383 215**	**R 1 571 682**	**R 2 209 699**	**R 4 791 919**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -24 125	R -23 281	R -94 356	R -197 283	R -458 164	R -656 126	R -691 607	R -785 841	R -1 104 849	R -2 380 960
Investors cash flows		R 24 125	R 23 281	R 229 151	R 327 360	R 458 164	R 656 126	R 691 607	R 785 841	R 1 104 849	R 2 410 960
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R 24 125**	**R 23 281**	**R 229 151**	**R 327 360**	**R 458 164**	**R 656 126**	**R 691 607**	**R 785 841**	**R 1 104 849**	**R 2 410 960**
Cumulative cash flow	R -1 007 000	R -982 875	R -959 594	R -730 443	R -403 083	R 55 081	R 711 207	R 1 402 814	R 2 188 655	R 3 293 505	R 5 704 465
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R 20 978	R 17 603	R 150 671	R 187 169	R 227 788	R 283 661	R 260 001	R 256 893	R 314 067	R 595 952
Net present value (NPV)	R 1 307 785										
Internal rate of return (IRR)	29.79%										
Payback period	**5 years**										
Discounted payback period	**7 years**										
Total projected cash flow	**R -1 007 000**	**R 24 125**	**R 23 281**	**R 229 151**	**R 327 360**	**R 458 164**	**R 656 126**	**R 691 607**	**R 785 841**	**R 1 104 849**	**R 2 410 960**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 55 081**	**R 656 126**	**R 691 607**	**R 785 841**	**R 1 104 849**	**R 2 410 960**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 22 583**	**R 269 012**	**R 283 559**	**R 322 195**	**R 452 988**	**R 988 493**
Income after tax	**R -1 007 000**	**R 24 125**	**R 23 281**	**R 229 151**	**R 327 360**	**R 435 581**	**R 387 114**	**R 408 048**	**R 463 646**	**R 651 861**	**R 1 422 466**
Return after tax	**23.49%**										

Base case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 113 932**	**R 103 952**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 45 620**	**R 41 624**	**R 159 505**	**R 315 321**	**R 692 374**	**R 937 487**	**R 934 319**	**R 1 003 757**	**R 1 334 304**	**R 2 718 702**
Total Sales	**R 0**	**R 45 620**	**R 41 624**	**R 273 438**	**R 419 273**	**R 692 374**	**R 937 487**	**R 934 319**	**R 1 003 757**	**R 1 334 304**	**R 2 748 702**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -22 810	R -20 812	R -79 753	R -157 660	R -346 187	R -468 743	R -467 160	R -501 878	R -667 152	R -1 359 351
Investors cash flows		R 22 810	R 20 812	R 193 685	R 261 612	R 346 187	R 468 743	R 467 160	R 501 878	R 667 152	R 1 389 351
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R 22 810**	**R 20 812**	**R 193 685**	**R 261 612**	**R 346 187**	**R 468 743**	**R 467 160**	**R 501 878**	**R 667 152**	**R 1 389 351**
Cumulative cash flow	R -1 007 000	R -984 190	R -963 378	R -769 693	R -508 081	R -161 894	R 306 849	R 774 009	R 1 275 887	R 1 943 039	R 3 332 390
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R 19 835	R 15 737	R 127 351	R 149 578	R 172 116	R 202 651	R 175 623	R 164 065	R 189 646	R 343 426
Net present value (NPV)	R 553 027										
Internal rate of return (IRR)	22.74%										
Payback period	**6 years**										
Discounted payback period	**8 years**										
Total projected cash flow	**R -1 007 000**	**R 22 810**	**R 20 812**	**R 193 685**	**R 261 612**	**R 346 187**	**R 468 743**	**R 467 160**	**R 501 878**	**R 667 152**	**R 1 389 351**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 306 849**	**R 467 160**	**R 501 878**	**R 667 152**	**R 1 389 351**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 125 808**	**R 191 535**	**R 205 770**	**R 273 532**	**R 569 634**
Income after tax	**R -1 007 000**	**R 22 810**	**R 20 812**	**R 193 685**	**R 261 612**	**R 346 187**	**R 342 935**	**R 275 624**	**R 296 108**	**R 393 620**	**R 819 717**
Return after tax	**17.41%**										

Bad case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 98 980**	**R 86 172**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 43 530**	**R 37 897**	**R 138 572**	**R 261 388**	**R 547 655**	**R 707 563**	**R 672 867**	**R 689 756**	**R 874 894**	**R 1 700 966**
Total Sales	**R 0**	**R 43 530**	**R 37 897**	**R 237 552**	**R 347 560**	**R 547 655**	**R 707 563**	**R 672 867**	**R 689 756**	**R 874 894**	**R 1 730 966**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -21 765	R -18 949	R -69 286	R -130 694	R -273 828	R -353 782	R -336 433	R -344 878	R -437 447	R -850 483
Investors cash flows		R 21 765	R 18 949	R 168 266	R 216 866	R 273 828	R 353 782	R 336 433	R 344 878	R 437 447	R 880 483
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R 21 765**	**R 18 949**	**R 168 266**	**R 216 866**	**R 273 828**	**R 353 782**	**R 336 433**	**R 344 878**	**R 437 447**	**R 880 483**
Cumulative cash flow	R -1 007 000	R -985 235	R -966 286	R -798 020	R -581 154	R -307 327	R 46 455	R 382 888	R 727 766	R 1 165 213	R 2 045 696
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R 18 926	R 14 328	R 110 638	R 123 994	R 136 141	R 152 950	R 126 478	R 112 741	R 124 350	R 217 642
Net present value (NPV)	R 131 186										
Internal rate of return (IRR)	17.16%										
Payback period	**6 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -1 007 000**	**R 21 765**	**R 18 949**	**R 168 266**	**R 216 866**	**R 273 828**	**R 353 782**	**R 336 433**	**R 344 878**	**R 437 447**	**R 880 483**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 46 455**	**R 336 433**	**R 344 878**	**R 437 447**	**R 880 483**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 19 047**	**R 137 938**	**R 141 400**	**R 179 353**	**R 360 998**
Income after tax	**R -1 007 000**	**R 21 765**	**R 18 949**	**R 168 266**	**R 216 866**	**R 273 828**	**R 334 735**	**R 198 496**	**R 203 478**	**R 258 094**	**R 519 485**
Return after tax	**12.74%**										

Worst case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 37 686**	**R 23 780**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 31 550**	**R 19 908**	**R 52 760**	**R 77 231**	**R 116 341**	**R 167 847**	**R 182 852**	**R 213 607**	**R 309 895**	**R 684 766**
Total Sales	**R 0**	**R 31 550**	**R 19 908**	**R 90 446**	**R 101 011**	**R 116 341**	**R 167 847**	**R 182 852**	**R 213 607**	**R 309 895**	**R 714 766**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0	R 0
Progeny split cost	R 0	R -15 775	R -9 954	R -26 380	R -38 616	R -58 171	R -83 924	R -91 426	R -106 803	R -154 948	R -342 383
Investors cash flows		R 15 775	R 9 954	R 64 066	R 62 395	R 58 171	R 83 924	R 91 426	R 106 803	R 154 948	R 372 383
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R 15 775**	**R 9 954**	**R 64 066**	**R 62 395**	**R 58 171**	**R 83 924**	**R 91 426**	**R 106 803**	**R 154 948**	**R 372 383**
Cumulative cash flow	R -1 007 000	R -991 225	R -981 271	R -917 205	R -854 810	R -796 639	R -712 715	R -621 289	R -514 486	R -359 538	R 12 845
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R 13 717	R 7 527	R 42 124	R 35 675	R 28 921	R 36 282	R 34 370	R 34 914	R 44 046	R 92 047
Net present value (NPV)	R -637 375										
Internal rate of return (IRR)	0.16%										
Payback period	**10 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -1 007 000**	**R 15 775**	**R 9 954**	**R 64 066**	**R 62 395**	**R 58 171**	**R 83 924**	**R 91 426**	**R 106 803**	**R 154 948**	**R 372 383**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 12 845**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 5 266**
Income after tax	**R -1 007 000**	**R 15 775**	**R 9 954**	**R 64 066**	**R 62 395**	**R 58 171**	**R 83 924**	**R 91 426**	**R 106 803**	**R 154 948**	**R 367 117**
Return after tax	**0.10%**										

APPENDIX K:

BLACK IMPALA CASH FLOW MODEL 2

Best Case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 150 000**	**R 150 000**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 50 000**	**R 50 000**	**R 210 000**	**R 455 000**	**R 1 095 000**	**R 1 625 000**	**R 1 775 000**	**R 2 090 000**	**R 3 045 000**	**R 6 800 000**
Total Sales	**R 0**	**R 50 000**	**R 50 000**	**R 360 000**	**R 605 000**	**R 1 095 000**	**R 1 625 000**	**R 1 775 000**	**R 2 090 000**	**R 3 045 000**	**R 6 830 000**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -157 500	R -157 500	R -147 500	R -132 500	R -135 000	R -137 500	R -162 500
Progeny split cost	R 0	R -5 000	R -5 000	R -36 000	R -60 500	R -109 500	R -162 500	R -177 500	R -209 000	R -304 500	R -683 000
Investors cash flows		R -7 500	R -55 000	R 201 500	R 387 000	R 828 000	R 1 315 000	R 1 465 000	R 1 746 000	R 2 603 000	R 5 984 500
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R -7 500**	**R -55 000**	**R 201 500**	**R 387 000**	**R 828 000**	**R 1 315 000**	**R 1 465 000**	**R 1 746 000**	**R 2 603 000**	**R 5 984 500**
Cumulative cash flow	R -1 007 000	R -1 014 500	R -1 069 500	R -868 000	R -481 000	R 347 000	R 1 662 000	R 3 127 000	R 4 873 000	R 7 476 000	R 13 460 500
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R -6 522	R -41 588	R 132 490	R 221 269	R 411 662	R 568 511	R 550 748	R 570 770	R 739 935	R 1 479 277
Net present value (NPV)	R 3 619 552										
Internal rate of return (IRR)	41.01%										
Payback period	**5 years**										
Discounted payback period	**6 years**										
Total projected cash flow	**R -1 007 000**	**R -7 500**	**R -55 000**	**R 201 500**	**R 387 000**	**R 828 000**	**R 1 315 000**	**R 1 465 000**	**R 1 746 000**	**R 2 603 000**	**R 5 984 500**
Taxable income						**R 347 000**	**R 1 315 000**	**R 1 465 000**	**R 1 746 000**	**R 2 603 000**	**R 5 984 500**
Tax						**R 142 270**	**R 539 150**	**R 600 650**	**R 715 860**	**R 1 067 230**	**R 2 453 645**
Income after tax	**R -1 007 000**	**R -7 500**	**R -55 000**	**R 201 500**	**R 387 000**	**R 685 730**	**R 775 850**	**R 864 350**	**R 1 030 140**	**R 1 535 770**	**R 3 530 855**
Return after tax	**33.28%**										

Good case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 134 795**	**R 130 077**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 48 250**	**R 46 561**	**R 188 713**	**R 394 567**	**R 916 327**	**R 1 312 252**	**R 1 383 215**	**R 1 571 682**	**R 2 209 699**	**R 4 761 919**
Total Sales	**R 0**	**R 48 250**	**R 46 561**	**R 323 508**	**R 524 644**	**R 916 327**	**R 1 312 252**	**R 1 383 215**	**R 1 571 682**	**R 2 209 699**	**R 4 791 919**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -157 500	R -157 500	R -147 500	R -132 500	R -135 000	R -137 500	R -162 500
Progeny split cost	R 0	R -4 825	R -4 656	R -32 351	R -52 464	R -91 633	R -131 225	R -138 321	R -157 168	R -220 970	R -479 192
Investors cash flows		R -9 075	R -58 095	R 168 657	R 314 680	R 667 195	R 1 033 527	R 1 112 393	R 1 279 514	R 1 851 229	R 4 150 228
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R -9 075**	**R -58 095**	**R 168 657**	**R 314 680**	**R 667 195**	**R 1 033 527**	**R 1 112 393**	**R 1 279 514**	**R 1 851 229**	**R 4 150 228**
Cumulative cash flow	R -1 007 000	R -1 016 075	R -1 074 170	R -905 513	R -590 834	R 76 361	R 1 109 888	R 2 222 281	R 3 501 795	R 5 353 024	R 9 503 252
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R -7 891	R -43 928	R 110 895	R 179 919	R 331 714	R 446 822	R 418 190	R 418 275	R 526 235	R 1 025 873
Net present value (NPV)	R 2 399 103										
Internal rate of return (IRR)	35.37%										
Payback period	**5 years**										
Discounted payback period	**6 years**										
Total projected cash flow	**R -1 007 000**	**R -9 075**	**R -58 095**	**R 168 657**	**R 314 680**	**R 667 195**	**R 1 033 527**	**R 1 112 393**	**R 1 279 514**	**R 1 851 229**	**R 4 150 228**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 76 361**	**R 1 033 527**	**R 1 112 393**	**R 1 279 514**	**R 1 851 229**	**R 4 150 228**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 31 308**	**R 423 746**	**R 456 081**	**R 524 601**	**R 759 004**	**R 1 701 593**
Income after tax	**R -1 007 000**	**R -9 075**	**R -58 095**	**R 168 657**	**R 314 680**	**R 635 887**	**R 609 781**	**R 656 312**	**R 754 913**	**R 1 092 225**	**R 2 448 634**
Return after tax	**28.34%**										

Base case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 113 932**	**R 103 952**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 45 620**	**R 41 624**	**R 159 505**	**R 315 321**	**R 692 374**	**R 937 487**	**R 934 319**	**R 1 003 757**	**R 1 334 304**	**R 2 718 702**
Total Sales	**R 0**	**R 45 620**	**R 41 624**	**R 273 438**	**R 419 273**	**R 692 374**	**R 937 487**	**R 934 319**	**R 1 003 757**	**R 1 334 304**	**R 2 748 702**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -157 500	R -157 500	R -147 500	R -132 500	R -135 000	R -137 500	R -162 500
Progeny split cost	R 0	R -4 562	R -4 162	R -27 344	R -41 927	R -69 237	R -93 749	R -93 432	R -100 376	R -133 430	R -274 870
Investors cash flows		R -11 442	R -62 539	R 123 594	R 219 845	R 465 636	R 696 238	R 708 387	R 768 381	R 1 063 374	R 2 311 332
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R -11 442**	**R -62 539**	**R 123 594**	**R 219 845**	**R 465 636**	**R 696 238**	**R 708 387**	**R 768 381**	**R 1 063 374**	**R 2 311 332**
Cumulative cash flow	R -1 007 000	R -1 018 442	R -1 080 981	R -957 387	R -737 541	R -271 905	R 424 333	R 1 132 720	R 1 901 101	R 2 964 475	R 5 275 807
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R -9 950	R -47 288	R 81 265	R 125 697	R 231 504	R 301 003	R 266 309	R 251 185	R 302 277	R 571 326
Net present value (NPV)	R 1 066 328										
Internal rate of return (IRR)	26.63%										
Payback period	**6 years**										
Discounted payback period	**8 years**										
Total projected cash flow	**R -1 007 000**	**R -11 442**	**R -62 539**	**R 123 594**	**R 219 845**	**R 465 636**	**R 696 238**	**R 708 387**	**R 768 381**	**R 1 063 374**	**R 2 311 332**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 424 333**	**R 708 387**	**R 768 381**	**R 1 063 374**	**R 2 311 332**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 173 977**	**R 290 439**	**R 315 036**	**R 435 983**	**R 947 646**
Income after tax	**R -1 007 000**	**R -11 442**	**R -62 539**	**R 123 594**	**R 219 845**	**R 465 636**	**R 522 261**	**R 417 949**	**R 453 345**	**R 627 390**	**R 1 363 686**
Return after tax	**20.72%**										

Bad case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 98 980**	**R 86 172**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 43 530**	**R 37 897**	**R 138 572**	**R 261 388**	**R 547 655**	**R 707 563**	**R 672 867**	**R 689 756**	**R 874 894**	**R 1 700 966**
Total Sales	**R 0**	**R 43 530**	**R 37 897**	**R 237 552**	**R 347 560**	**R 547 655**	**R 707 563**	**R 672 867**	**R 689 756**	**R 874 894**	**R 1 730 966**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -157 500	R -157 500	R -147 500	R -132 500	R -135 000	R -137 500	R -162 500
Progeny split cost	R 0	R -4 353	R -3 790	R -23 755	R -34 756	R -54 766	R -70 756	R -67 287	R -68 976	R -87 489	R -173 097
Investors cash flows		R -13 323	R -65 893	R 91 297	R 155 304	R 335 390	R 489 307	R 473 080	R 485 781	R 649 904	R 1 395 369
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R -13 323**	**R -65 893**	**R 91 297**	**R 155 304**	**R 335 390**	**R 489 307**	**R 473 080**	**R 485 781**	**R 649 904**	**R 1 395 369**
Cumulative cash flow	R -1 007 000	R -1 020 323	R -1 086 216	R -994 919	R -839 615	R -504 225	R -14 918	R 458 162	R 943 943	R 1 593 847	R 2 989 216
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R -11 585	R -49 824	R 60 029	R 88 796	R 166 748	R 211 541	R 177 848	R 158 803	R 184 743	R 344 914
Net present value (NPV)	R 325 012										
Internal rate of return (IRR)	19.33%										
Payback period	**7 years**										
Discounted payback period	**10 years**										
Total projected cash flow	**R -1 007 000**	**R -13 323**	**R -65 893**	**R 91 297**	**R 155 304**	**R 335 390**	**R 489 307**	**R 473 080**	**R 485 781**	**R 649 904**	**R 1 395 369**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 458 162**	**R 485 781**	**R 649 904**	**R 1 395 369**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 187 846**	**R 199 170**	**R 266 461**	**R 572 101**
Income after tax	**R -1 007 000**	**R -13 323**	**R -65 893**	**R 91 297**	**R 155 304**	**R 335 390**	**R 489 307**	**R 285 234**	**R 286 611**	**R 383 444**	**R 823 268**
Return after tax	**14.55%**										

Worst case

	Years										
Sales	0	1	2	3	4	5	6	7	8	9	10
Sales of initial herd	**R 0**	**R 0**	**R 0**	**R 37 686**	**R 23 780**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 30 000**
Sales of progeny	**R 0**	**R 31 550**	**R 19 908**	**R 52 760**	**R 77 231**	**R 116 341**	**R 167 847**	**R 182 852**	**R 213 607**	**R 309 895**	**R 684 766**
Total Sales	**R 0**	**R 31 550**	**R 19 908**	**R 90 446**	**R 101 011**	**R 116 341**	**R 167 847**	**R 182 852**	**R 213 607**	**R 309 895**	**R 714 766**
Transport and incurance at 6%	**R -57 000.00**										
Variable management cost		R -52 500	R -100 000	R -122 500	R -157 500	R -157 500	R -147 500	R -132 500	R -135 000	R -137 500	R -162 500
Progeny split cost	R 0	R -3 155	R -1 991	R -9 045	R -10 101	R -11 634	R -16 785	R -18 285	R -21 361	R -30 990	R -71 477
Investors cash flows		R -24 105	R -82 083	R -41 098	R -66 590	R -52 793	R 3 562	R 32 067	R 57 246	R 141 406	R 480 789
Capital expenditure	R -950 000										
Total projected cash flow	**R -1 007 000**	**R -24 105**	**R -82 083**	**R -41 098**	**R -66 590**	**R -52 793**	**R 3 562**	**R 32 067**	**R 57 246**	**R 141 406**	**R 480 789**
Cumulative cash flow	R -1 007 000	R -1 031 105	R -1 113 188	R -1 154 286	R -1 220 876	R -1 273 669	R -1 270 107	R -1 238 040	R -1 180 794	R -1 039 388	R -558 599
Required rate or return	15%										
Discounted cash flow	R -1 007 000	R -20 961	R -62 066	R -27 023	R -38 073	R -26 247	R 1 540	R 12 055	R 18 714	R 40 196	R 118 844
Net present value (NPV)	R -990 021										
Internal rate of return (IRR)	-6.36%										
Payback period	**>10 years**										
Discounted payback period	**>10 years**										
Total projected cash flow	**R -1 007 000**	**R -24 105**	**R -82 083**	**R -41 098**	**R -66 590**	**R -52 793**	**R 3 562**	**R 32 067**	**R 57 246**	**R 141 406**	**R 480 789**
Taxable income		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**
Tax		**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**	**R 0**
Income after tax	**R -1 007 000**	**R -24 105**	**R -82 083**	**R -41 098**	**R -66 590**	**R -52 793**	**R 3 562**	**R 32 067**	**R 57 246**	**R 141 406**	**R 480 789**
Return after tax	**-6.36%**										